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Approval and Promulgation of Implementation Plans; Texas and Oklahoma; Regional Haze State Implementation Plans; Interstate Visibility Transport State Implementation Plan To Address Pollution Affecting Visibility and Regional Haze; Federal Implementation Plan for Regional Haze; Final Rule

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 52

[EPA–R06–OAR–2014–0754; FRL–9940–21–Region 6]

Approval and Promulgation of Implementation Plans; Texas and Oklahoma; Regional Haze State Implementation Plans; Interstate Visibility Transport State Implementation Plan to Address Pollution Affecting Visibility and Regional Haze; Federal Implementation Plan for Regional Haze

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final rule.

SUMMARY: The Environmental Protection Agency (EPA) is partially approving and partially disapproving a revision to the Texas State Implementation Plan (SIP) submitted on March 31, 2009, to address the regional haze requirements of the Clean Air Act (CAA). The EPA is partially approving this SIP revision as meeting certain requirements of the regional haze program, including the Best Available Retrofit Technology (BART) requirements for facilities other than Electric Generating Units (EGUs). The EPA is partially disapproving the Texas SIP revision for not adequately addressing other requirements of the regional haze program related to reasonable progress, the long-term strategy, and the calculation of natural visibility conditions. The EPA is promulgating a Federal Implementation Plan (FIP), which includes sulfur dioxide (SO_2) emission limits for fifteen EGUs located at eight coal-fired power plants, to address these deficiencies.

In a previous rulemaking, the EPA had issued a limited disapproval of the Texas regional haze SIP with regard to Texas' reliance on the Clean Air Interstate Rule (CAIR), without promulgating a FIP. The EPA is not taking final action to address this deficiency at this time. The EPA is also disapproving portions of several separate infrastructure SIP revisions submitted by Texas for the purpose of addressing the requirements of the CAA regarding interference with other states' programs for visibility protection (interstate visibility transport) triggered by the issuance of the 1997 fine particulate matter ($PM_{2.5}$) National Ambient Air Quality Standards (NAAQS), the 1997 ozone NAAQS, the 2006 $PM_{2.5}$ NAAQS, the 2008 ozone NAAQS, the 2010 Nitrogen Dioxide (NO_2) NAAQS, and the 2010 SO_2 NAAQS. The EPA is deferring action at this time on promulgating a FIP to address these deficiencies.

Finally, the EPA is finalizing its proposed partial disapproval of a revision to the Oklahoma SIP submitted on February 19, 2010, to address the regional haze requirements of the CAA. Specifically, the EPA is disapproving portions of the Oklahoma SIP related to reasonable progress and the establishment of reasonable progress goals for the Class I area located within the state. The EPA is promulgating a FIP to address these deficiencies.

The EPA takes seriously its disapproval of SIPs, or portions thereof, and stands ready to work with the States to develop SIPs that would replace the Federal plans the EPA is promulgating today.

DATES: This final rule is effective on February 4, 2016.

ADDRESSES: The EPA has established a docket for this action under Docket ID No. EPA–EPA–R06–OAR–2014–0754. All documents in the docket are listed on the *http://www.regulations.gov* Web site. Although listed in the index, some information is not publicly available, *e.g.,* Confidential Business Information (CBI) or other information whose disclosure is restricted by statute therefore is not posted to regulations.gov. Certain other material, such as copyrighted material, is not placed on the Internet and will be publicly available only in hard copy. Publicly available docket materials are available either electronically through *http://www.regulations.gov* or in hard copy at EPA Region 6, 1445 Ross Avenue, Suite 700, Dallas, Texas 75202–2733.

FOR FURTHER INFORMATION CONTACT: Joe Kordzi at 214–665–7186; or *Kordzi.joe@epa.gov.*

SUPPLEMENTARY INFORMATION: Throughout this document wherever ''we,'' ''us,'' or ''our'' is used, we mean the EPA. Also throughout this document, when we refer to the Oklahoma Department of Environmental Quality (ODEQ), or the Texas Commission on Environmental Quality (TCEQ), we mean Oklahoma and Texas, respectively.

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I. Introduction

The purpose of Federal and state regional haze plans is to achieve a national goal, declared by Congress, of restoring and protecting visibility at 156 Federal Class I areas across the United States, most of which are national parks and wilderness areas with scenic vistas enjoyed by the American public. The national goal, as described in CAA Section 169A, is ''the prevention of any future, and the remedying of any existing, impairment of visibility in mandatory Class I Federal areas which impairment results from man-made air pollution.'' States are required to submit SIPs that ensure reasonable progress toward the national goal of remedying anthropogenic visibility impairment in Federal Class I areas, such as Big Bend National Park in Texas and the Wichita Mountains National Wildlife Refuge in Oklahoma.

In today's action, we are partially approving and partially disapproving portions of a SIP revision submitted by Texas to address the requirements of the regional haze program. Texas' regional haze SIP submittal included long-term strategies for making reasonable progress towards improving visibility at all Class I areas impacted by emissions from Texas sources and set reasonable progress goals for the two Class I areas

located within the state, the Big Bend and the Guadalupe Mountains National Parks. Texas addressed a key element of the regional haze program, the BART requirements, in part through reliance on CAIR. Specifically, for its EGUs, Texas relied on CAIR, which was issued in 2005, to meet the BART requirements for emissions of SO_2 and oxides of nitrogen (NO_X). For particulate matter (PM) from its EGUs and for other categories of sources subject to the BART requirements, Texas concluded that no other BART controls were appropriate. Texas also considered whether additional measures beyond BART would be appropriate to ensure reasonable progress at its Class I areas and in Class I areas in nearby states, but concluded that no additional measures were needed to ensure reasonable progress. In its SIP submittal, Texas anticipated emissions reductions from CAIR, Federal mobile source standards, and other anticipated air pollution control requirements would adequately ensure reasonable progress toward improving visibility by 2018, the end of the first planning period.

We took partial action in 2012 on Texas' regional haze SIP submittal. In our 2012 action, we issued a limited disapproval of the SIP revision because of Texas' reliance on CAIR to satisfy SO_2 and NO_X BART and to meet the long-term strategy requirements for its EGUs.[1] As explained in that action, our limited disapproval of Texas' regional haze SIP (and the SIPs of thirteen other states addressed in the 2012 action) was the result of a decision by the D.C. Circuit remanding CAIR to the EPA.[2] We concluded that because CAIR had been remanded and would remain in place only temporarily, we could not fully approve regional haze SIP revisions that relied on temporary reductions from CAIR. By issuing a limited disapproval rather than a full disapproval, however, we allowed Texas and these states to rely on CAIR for so long as CAIR was in place.[3] We addressed the resulting deficiencies in the regional haze SIPs of a number of the fourteen states through FIPs that relied on CAIR's successor, the Cross State Air Pollution Rule (CSAPR), to achieve improvements in visibility. However, we did not finalize a FIP for Texas in that action.[4] As a result, the deficiencies in Texas' regional haze SIP associated with its reliance on CAIR have not been addressed.

We are also disapproving several SIP revisions submitted by Texas to address the requirements of CAA Section 110(a)(2)(D)(i)(II) with respect to visibility. This provision of the CAA requires that each state's SIP have adequate provisions to prohibit in-state emissions from interfering with measures required to protect visibility in any other state. To address this requirement, the SIP must address the potential for interference with visibility protection caused by the pollutant (including precursors) to which the new or revised NAAQS applies. In its SIP submittals addressing these requirements, Texas indicated that its regional haze SIP fulfilled its obligation for addressing emissions that would interfere with measures required to be included in the SIP for any other state to protect visibility.

Finally, we are taking action on an element of the Oklahoma regional haze SIP submitted in February 2010. We previously issued a partial approval, and partial disapproval of the Oklahoma SIP in 2011, and promulgated a FIP to address the deficiencies that we had identified in our partial disapproval.[5] Our FIP required the installation of scrubber retrofits at six units, located at three facilities in Oklahoma in order to meet BART requirements.[6] Due to the special interrelationship of the visibility impairing transport of pollution between Texas and Oklahoma, we delayed action on the reasonable progress goals for the Wichita Mountains until we could review and evaluate Texas' SIP submittal. In today's action, we address the reasonable progress goals established by Oklahoma for this Class I area.

A. Our Proposed Action

When we reviewed the Oklahoma regional haze SIP, we noted that sources in Texas had significant impacts on visibility in the Wichita Mountains. Given the magnitude of these interstate impacts, we determined that the Oklahoma and Texas regional haze SIPs were interconnected, especially considering the relationship between upwind and downwind states in the reasonable progress and long-term strategy provisions of the Regional Haze Rule. Although we were able to act on the majority of Oklahoma's SIP at that time, we deferred action on Oklahoma's reasonable progress goals for the Wichita Mountains until we could first assess whether Texas had reasonably considered the potential for controls on those of its sources that were impacting visibility at the Wichita Mountains.[7] Having now reviewed the Texas regional haze SIP, it is clear that both Texas and Oklahoma acknowledged in their SIP submittals that sources in Texas have a large impact on visibility at the Wichita Mountains; indeed, the visibility impacts at this Class I area from Texas point sources are several times greater than the impacts from Oklahoma's own point sources.

During the interstate consultation required by the Regional Haze Rule, Oklahoma and Texas discussed the significant contribution of sources in Texas to visibility impairment at the Wichita Mountains, but Texas concluded that no additional controls were warranted for its sources during the first planning period to ensure reasonable progress at the Wichita Mountains, or at its own Class I areas, the Big Bend and the Guadalupe Mountains National Parks. In reaching this conclusion, Texas relied on an analysis that obscured the benefits of potentially cost-effective controls on those sources or groups of sources with the largest visibility impacts in these Class I areas by inclusion of those controls with little visibility benefit, but which served to increase the total cost figures. This flawed analysis deprived Oklahoma of the information it needed to properly assess the reasonableness of controls on Texas sources during the consultation process and prevented Texas from properly assessing the reasonableness of controls to remedy visibility at Big Bend and the Guadalupe Mountains. As a result, Oklahoma established reasonable progress goals for the Wichita Mountains that did not reflect any emission reductions from Texas beyond those that will be achieved by compliance with other requirements of the CAA. Texas established reasonable progress goals for its own Class I areas based on a similar assessment.

Our proposed action on the Texas regional haze and interstate visibility transport SIP submittals and the Oklahoma regional haze SIP is discussed in detail in our notice of proposed rulemaking promulgated on

[1] 77 FR 33642 (June 7, 2012).

[2] *See North Carolina* v. *EPA,* 531 F.3d 896 (D.C. Cir. 2008) (modified by 550 F.3d 1176).

[3] 77 FR at 33647.

[4] 77 FR at 33654 (explaining that the EPA was not finalizing a FIP for Texas in order to allow more time for the EPA to assess the SIP submittal from Texas addressing regional haze and noting that extra time was needed given ''the variety and number of BART eligible sources and the complexity of the SIP'').

[5] 76 FR 81728.

[6] 76 FR 81728.

[7] 76 FR 16177 (''[W]e believe that to properly assess whether Oklahoma has satisfied the reasonable progress requirements of Section 51.308(d)(1), we must review and evaluate Texas' submittal. We will do this in the course of processing the Texas [regional haze] SIP.'')

December 16, 2014.[8] In brief, we proposed to partially approve portions of the Texas regional haze SIP, including the determination by Texas that none of its non-EGU BART-eligible sources are subject to BART. We proposed to find, however, that Texas did not satisfy a number of requirements related to establishment of its reasonable progress goals and long-term strategy. We therefore proposed to disapprove Texas' reasonable progress goals. We proposed to disapprove Texas' calculation of natural visibility conditions and the uniform rates of progress for its two Class I areas. We proposed to disapprove the portions of SIP revisions separately submitted by Texas to meet the interstate visibility transport requirements for the 1997 $PM_{2.5}$ and ozone NAAQS, the 2006 $PM_{2.5}$ NAAQS, the 2008 ozone NAAQS, the 2010 NO_2 NAAQS, and the 2010 SO_2 NAAQS. These submittals relied on the Texas regional haze SIP which, in turn, relied on CAIR to achieve the necessary emissions reductions. We proposed to find that as CAIR had been replaced by CSAPR, and CSAPR was scheduled to go into effect in 2015, Texas could not rely on its regional haze SIP to ensure that emissions from Texas do not interfere with the measures to protect visibility in nearby states. In addition, we proposed disapproval of these SIP submittals based on our proposed conclusion that additional control of SO_2 emissions in Texas is needed to prevent interference with measures required to be included in the Oklahoma SIP to protect visibility.

Finally, we also proposed to disapprove Oklahoma's reasonable progress goals for the Wichita Mountains because Oklahoma did not satisfy several of the requirements related to setting those goals. In assessing the measures necessary to achieve the uniform rate of progress, Oklahoma demonstrated that eliminating all emissions from Oklahoma sources would not be sufficient to meet the uniform rate of progress in 2018. Oklahoma realized that the efforts to meet natural visibility conditions would require emission reductions from other states. The work done by the Central Regional Air Planning Association (CENRAP) showed that SO_2 point sources in Texas were a significant contributor to haze at the Wichita Mountains. However, Oklahoma did not pursue this information in its consultations with Texas. As explained more fully in our proposed rule, we believe that the lack of development of critical information regarding reasonable reductions from Texas sources prevented Oklahoma from having adequate information to establish its reasonable progress goals for the Wichita Mountains. Oklahoma should have requested that Texas further investigate its sources, or requested additional reductions from Texas sources to ensure that all reasonable measures to improve visibility were included in Texas' long-term strategy and incorporated into the reasonable progress goals for the Wichita Mountains. We proposed to find that due to these flawed consultations, Oklahoma did not consider the emission reduction measures necessary to achieve the uniform rate of progress for the Wichita Mountains and did not adequately demonstrate that its reasonable progress goals were reasonable.

We proposed FIPs for Texas and Oklahoma to remedy these deficiencies. Our proposed Texas FIP included SO_2 emission limits on fifteen EGUs located at eight Texas facilities in order to make reasonable progress at the three Class I areas in Texas and Oklahoma. We estimate that our FIP will reduce the emissions of SO_2 from Texas sources by approximately 230,000 tons per year. We proposed that compliance with these emission limits be based on 30-Boiler-Operating-Day (BOD) averages.[9] The SO_2 emission limits were based on seven scrubber retrofits, seven scrubber upgrades, and the continued operation of an existing upgraded scrubber at the San Miguel power plant. We proposed that compliance with these limits be achieved within five years of the effective date of our final rule for the control assessments based on scrubber retrofits, and within three years of the effective date of our final rule for the control assessments based on scrubber upgrades. We proposed that compliance be achieved within one year for San Miguel.

We proposed new reasonable progress goals for 2018 for Big Bend and the Guadalupe Mountains in Texas and for the Wichita Mountains in Oklahoma that take into account the additional emission reductions required in our proposed FIP for Texas. We proposed new estimates of natural conditions for the two Class I areas in Texas and proposed new uniform rates of progress for these areas. We proposed to rely on CSAPR to satisfy the SO_2 and NO_X BART requirements for EGUs in Texas. Finally, we proposed to rely on CSAPR and the SO_2 emission limits in our proposed FIP to address the deficiencies identified in Texas' infrastructure SIP revisions. Our proposed FIP for Oklahoma did not include any additional requirements on emission sources within Oklahoma.

Our electronic docket at *www.regulations.gov* contains Technical Support Documents (TSDs) and other materials that supported our proposal. Some information is protected as CBI and thus is not available to the public or posted electronically. Due to several requests from the public and due to the complex nature of our proposal, we provided for an extended public comment period, which closed on April 20, 2015.

B. Summary of Our Final Decision

Below we present a summary of the major points of our final decision regarding the Texas regional haze SIP, the portions of Texas SIP submittals addressing interstate visibility transport, and those parts of the Oklahoma regional haze SIP that we have not previously acted upon. We summarize which parts of the Texas and Oklahoma regional haze SIPs and the interstate visibility transport portions of Texas' SIP submittals we are disapproving, which parts are cured by our FIP, and which parts we are deferring action upon.

1. Texas

In this action, we are partially approving and partially disapproving portions of the SIP revision submitted by Texas to address the requirements of the regional haze program. We are also disapproving portions of several SIP revisions addressing the requirements of the CAA that prohibit air pollutant emissions from interfering with measures required to protect visibility in any other state, as described below.

a. Reasonable Progress Goals

We are finalizing our disapproval of Texas' reasonable progress goals for Big Bend and the Guadalupe Mountains. We have determined that Texas has not demonstrated that its reasonable progress goals provide for reasonable progress towards meeting the national visibility goal. Specifically, we find that Texas did not satisfy several of the requirements of the regional haze rule at 40 CFR 51.308(d)(1) (hereinafter referred to as § 51.308(d)) with regard to setting reasonable progress goals, most notably the requirement to reasonably consider

[8] 79 FR 74818.

[9] We explained in our proposed rule that the BART Guidelines describe a boiler-operating-day ''to be any 24-hour period between 12:00 midnight and the following midnight during which any fuel is combusted at any time at the steam generating unit.'' See 70 FR 39172 (July 6, 2005). To calculate a 30 day rolling average based on the boiler-operating-day, the average of the last 30 ''boiler-operating-days'' is used.

the four statutory reasonable progress factors under § 51.308 (d)(1)(i)(A) and the requirement to adequately justify reasonable progress goals that are less stringent than the uniform rate of progress under § 51.308 (d)(1)(ii).

At the outset and as we discussed in detail in our proposal, we find the set of potential controls identified by Texas and how it analyzed and weighed the four reasonable progress factors under § 51.308(d)(1)(i)(A) was inappropriate.[10] We are finalizing our determination that Texas' analysis was deficient and not approvable because the large control set it selected was not appropriately refined, targeted, or focused on those sources having the most significant and potentially cost-effective visibility benefits. We conclude this control set included controls on sources that would increase total cost figures, but would achieve very little visibility benefit. As discussed in our proposal, because Texas only estimated the visibility benefit of all the controls together, it was not able to assess the potential benefit of controlling those sources with the greatest visibility impacts, and potentially cost-effective controls. Therefore, the effects of those controls with the greatest visibility benefits were obscured by the inclusion of those controls with little visibility benefit. This only served to increase the total cost figure, making Texas' potential control set seem less attractive.[11] We therefore finalize our disapproval of the portions of the Texas regional haze SIP addressing the requirements of § 51.308 (d)(1)(i)(A), regarding Texas' reasonable progress four-factor analysis.[12]

We are also finalizing our disapproval of Texas' assessment of the emission reduction measures needed to achieve the uniform rate of progress for the period covered by the SIP, under § 51.308(d)(1)(i)(B). Although Texas correctly followed the procedures for analyzing and determining the rate of progress needed to attain natural visibility conditions by the year 2064, we find that Texas calculated this rate of progress on the basis of, and compared baseline visibility conditions to, a flawed estimation of natural visibility conditions for Big Bend and the Guadalupe Mountains.[13] As discussed in the section below, we are finalizing our disapproval of Texas' calculation of natural visibility conditions for Big Bend and the Guadalupe Mountains in this action.

We also find that Texas failed to adequately justify reasonable progress goals that are less stringent than the uniform rate of progress under § 51.308(d)(1)(ii).[14] Although we agree with Texas that a rate of improvement necessary to attain natural visibility conditions by 2064 is not reasonable, we do not find that the rate of improvement that Texas has selected is reasonable, because we have determined that Texas' four-factor analysis and the analysis of emission measures needed to meet the uniform rate of progress does not meet the requirements of the Regional Haze Rule. We therefore finalize our disapproval of the reasonable progress goals for Big Bend and the Guadalupe Mountains under § 51.308(d)(1)(ii). In so doing, we rely on the specific directive in § 51.308(d)(1)(iii) that in determining whether the State's goal for visibility improvement provides for reasonable progress towards natural visibility conditions, the Administrator will evaluate the demonstrations developed by the State pursuant to paragraphs (d)(1)(i) and (ii).

With regard to the requirement under § 51.308(d)(1)(iv) to consult with other states which may reasonably be anticipated to cause or contribute to visibility impairment at its Class I areas, we find that Texas appropriately identified those states with the largest impacts on Texas Class I areas and invited them for consultation. Based on our review of the CENRAP's source apportionment modeling and given the small modeled contributions from individual nearby states, especially when only considering anthropogenic sources that can be easily controlled in comparison with the size of impacts from Texas sources and international sources, we find that it was reasonable for Texas to have focused the analysis of additional controls on sources within Texas. We agree with Texas' determination that it was not reasonable to request additional controls from other states at this time. Therefore, we are finalizing our determination that Texas has satisfied the requirement under § 51.308(d)(1)(iv).

Under § 51.308(d)(1)(vi), Texas may not adopt a reasonable progress goal that represents less visibility improvement than is expected to result from implementation of other requirements of the CAA during the applicable planning period. As discussed in our proposal, we find that Texas' reasonable progress goals for 2018, based on the CENRAP model projections, represent at least as much visibility improvement as was expected to result from implementation of other requirements of the CAA (*i.e.,* requirements other than regional haze) during the applicable planning period.[15] In this action we are finalizing our approval of the portion of the Texas regional haze SIP addressing the requirement under § 51.308(d)(1)(vi).

b. Calculations of Baseline and Natural Visibility Conditions

As required by § 51.308(d)(2)(i) of the Regional Haze Rule, Texas calculated baseline/current conditions for its two Class I areas, Big Bend and the Guadalupe Mountains, on the most impaired and least impaired days. Texas calculated baseline visibility conditions for Big Bend and the Guadalupe Mountains using available monitoring data over the 2000–2004 period and the new IMPROVE equation, as discussed in our proposal.[16] We are finalizing our approval that Texas has satisfied the baseline visibility requirements of § 51.308(d)(2)(i).

Under § 51.308(d)(2)(iii), Texas must determine natural visibility conditions for the most impaired and least impaired days for the Class I areas in the state. Our guidance [17] provides default natural conditions for the 20% worst and 20% best days for each Class I area based on the original IMPROVE equation. As documented in our guidance, states are allowed to use a ''refined'' approach or alternative approaches to the guidance defaults to estimate the values that characterize the natural visibility conditions of their Class I areas.[18] The default natural

[10] 79 FR 74838.

[11] 79 FR 74838. Additionally, the analysis of potential controls in the Texas SIP did not include any consideration of the reasonableness of control upgrades or increased utilization of existing controls to reduce emissions at sources with large visibility impacts at nearby Class I areas. These controls were validated as especially cost-effective by the technical record for this FIP. At costs ranging from $368/ton to $910/ton, over 100,000 tpy of SO_2 emission reductions can be achieved from a small number of scrubber upgrades, resulting in very cost-effective visibility benefits at Texas Class I areas and Class I areas in other states.

[12] The ''four-factor analyses'' or the ''four factors'' refers to the requirement in § 51.308(d)(1)(i)(A) that in establishing a reasonable progress goal a state must consider the costs of compliance, the time necessary for compliance, the energy and non-air quality environmental impacts of compliance, and the remaining useful life of any potentially affected sources, and include a demonstration showing how these factors were taken into consideration in selecting the goal.

[13] 79 FR 74833.

[14] 79 FR 74843.

[15] 79 FR 74833.

[16] 79 FR 74832.

[17] Guidance for Estimating Natural Visibility Conditions Under the Regional Haze Rule, EPA–454/B–03–005, September 2003.

[18] States are ''free to develop alternative approaches that will provide natural visibility conditions estimates that are technically and scientifically supportable. Any refined approach should be based on accurate, complete, and unbiased information and should be developed using a high degree of scientific rigor.'' Guidance for Estimating Natural Visibility Conditions Under

Continued

conditions in our 2003 guidance were updated by the Natural Haze Levels II Committee utilizing the new IMPROVE equation and included some refinements to the estimates for the PM components.[19] These estimates are referred to as the ''NC II'' default natural visibility conditions. Texas chose to derive a ''refined'' estimate of natural visibility conditions rather than using the default NC II values. Texas started with this refined version of default natural visibility conditions, but further altered some of its parameters concerning the contributions of coarse mass and fine soil by assuming that 100% of the fine soil and coarse mass concentrations in the baseline period should be attributed to natural causes and that the corresponding estimates in the NC II values should be replaced. We are finalizing our determination that Texas has not adequately demonstrated that all coarse mass and fine soil measured in the baseline period can be attributed to 100% natural sources and we are therefore disapproving Texas' calculated natural visibility conditions under § 51.308(d)(2)(iii). We are also finalizing our disapproval of the portion of the Texas SIP that addresses the requirement to calculate the number of deciviews by which baseline conditions exceed natural conditions for the best and worst visibility days at the Texas Class I areas, under § 51.308(d)(2)(iv)(A). Because the calculation relies on the determination of natural visibility conditions, which we are disapproving, we must also disapprove Texas' calculation of the level of visibility impairment above natural conditions.

c. Long-Term Strategy

Section 51.308(d)(3)(i) requires that where Texas has emissions that are reasonably anticipated to contribute to visibility impairment in any mandatory Class I area located in another state, it must consult with that state in order to develop coordinated emission management strategies. Texas also must consult with any other state having emissions that are reasonably anticipated to contribute to visibility impairment in any mandatory Class I area within it (we have discussed this consultation requirement above). Texas and Oklahoma agreed that visibility impairment at the Wichita Mountains due to emissions from sources in Texas is significant and that the impacts from point sources in Texas are several times greater than the impact from Oklahoma point sources. Furthermore, the ODEQ asserted in its consultations with the TCEQ, and elsewhere in its regional haze SIP, that it would not be able to reach natural visibility by 2064 without additional reductions from Texas sources. Oklahoma and Texas discussed the significant contribution of sources in Texas to visibility impairment at the Wichita Mountains during the interstate consultation process required by the Regional Haze Rule. The results of the CENRAP analysis demonstrated that Texas point sources, and in particular EGUs in northeast Texas, have large visibility impacts at the Wichita Mountains and that cost-effective controls were potentially available for some of these sources. Ultimately, Texas unreasonably determined that no additional controls were warranted for its sources during the first planning period to help achieve reasonable progress at the Wichita Mountains. In analyzing whether additional controls should be required for some of its sources under the long-term strategy provisions of the Regional Haze Rule, Texas relied on the same flawed analysis discussed above that it relied on to evaluate additional controls under the reasonable progress provisions to address visibility impairment at Texas' own Class I areas. Texas' analytical approach obscured the contributions of individual sources that Texas' own analysis indicated could be cost-effectively controlled. This deprived Oklahoma of the information it needed to properly assess whether there were reasonable controls for Texas sources and to properly establish reasonable progress goals for the Wichita Mountains that included the resulting emission reductions. We are therefore finalizing our disapproval of the portion of the Texas regional haze SIP addressing the requirement in § 51.308(d)(3)(i) to ''consult with the other State(s) in order to develop coordinated emission management strategies.''

Section 51.308(d)(3)(ii) requires that if Texas emissions cause or contribute to impairment in another state's Class I area, it must demonstrate that it has included in its regional haze SIP all measures necessary to obtain its share of the emission reductions needed to meet the progress goal for that Class I area. Section 51.308(d)(3)(ii) also requires that since Texas participated in a regional planning process, it must ensure it has included all measures needed to achieve its apportionment of emission reduction obligations agreed upon through that process. As discussed in our proposal, we find that the technical analysis developed by CENRAP and supplemented by Texas did not provide the information needed to evaluate the reasonableness of controls on those sources with the greatest potential to impact visibility at the Wichita Mountains.[20] Texas' ''share of the emission reductions needed to meet the progress goal'' for the Wichita Mountains was not properly established because of the inadequacies in its technical analyses, which compromised its consultations with Oklahoma. We are finalizing our determination that Texas did not develop an adequate technical basis to inform consultations with Oklahoma in order to develop coordinated management strategies and to identify reasonable reductions from its sources. As a result, we find that Texas did not incorporate those reasonable reductions into its long-term strategy. For these reasons we are finalizing our determination that Texas did not adequately meet the requirement in § 51.308(d)(3)(ii).

Section 51.308(d)(3)(iv) requires that Texas identify all anthropogenic sources of visibility impairment considered by it in developing its long-term strategy. We proposed to find that Texas' 2002 and 2018 emission inventories are acceptable and that it satisfies § 51.308(d)(3)(iv) and today, we take final action to approve that finding. However, under § 51.308(d)(3)(iii), Texas must document the technical basis, including modeling, monitoring, and emissions information, on which it is relying to determine its apportionment of emission reduction obligations necessary for achieving reasonable progress in each mandatory Class I area it affects. Texas addressed this requirement mainly by relying on technical analyses developed by CENRAP and approved by all state participants, but it also performed an additional analysis building upon the work of CENRAP in order to evaluate additional controls under the reasonable progress and long-term strategy provisions of the Regional Haze Rule. As discussed in our proposal, we find that this additional analysis was inadequate because the large control set Texas selected was not appropriately refined, targeted, or focused on those sources having significant and potentially cost-effective visibility benefits and did not provide the information necessary to determine the reasonableness of controls at those

the Regional Haze Rule, EPA– 454/B–03–005, September 2003, p 1–11

[19] The second version of the natural haze level II estimates based on the work of the Natural Haze Levels II Committee is available at: *http://vista.cira.colostate.edu/Docs/IMPROVE/Aerosol/NaturalConditions/NaturalConditionsII_Format2_v2.xls.*

[20] 79 FR 74857.

sources in Texas that have the greatest visibility impacts at the Wichita Mountains.[21] Therefore, we are finalizing our disapproval of the portion of the Texas regional haze SIP that addresses the requirement in § 51.308(d)(3)(iii) to document the technical basis on which the state is relying to determine its apportionment of emission reduction obligations necessary for achieving reasonable progress at the Wichita Mountains.

In developing its long-term strategy, the state must consider a number of factors identified in § 51.308(d)(3)(v)(A)–(G). In this action, for the reasons discussed in our proposal,[22] we are approving several portions of the Texas regional haze SIP as adequately addressing the following provisions of § 51.308(d)(3)(v): (A) Emission reductions due to ongoing air pollution control programs, including measures to address RAVI (Reasonably Attributable Visibility Impairment); (B) measures to mitigate the impacts of construction activities; (D) source retirement and replacement schedules; (E) smoke management techniques for agricultural and forestry management purposes including plans as currently exist within the state for these purposes; (F) enforceability of emissions limitations and control measures; and (G) the anticipated net effect on visibility due to projected changes in point, area, and mobile source emissions over the period addressed by the long-term strategy. However, we are disapproving the portion of the Texas regional haze SIP addressing paragraph (C) of § 51.308(d)(3)(v), the requirement to consider emissions limitations and schedules for compliance to achieve the reasonable progress goals. As discussed in depth elsewhere in this document and in our separate Response to Comment (RTC) document, we have determined that Texas' analysis is inadequate because it does not provide the information necessary to determine the reasonableness of controls at those sources in Texas that significantly impact visibility at the Wichita Mountains in Oklahoma, or the Texas Class I areas. Therefore, we find that Texas did not properly consider the emissions limitations and schedules for compliance necessary to achieve reasonable progress at its Class I areas or the Wichita Mountains Class I area in Oklahoma.

d. Monitoring Strategy and Other Requirements

Section 51.308(d)(4) requires that the Texas regional haze SIP contain a monitoring strategy for measuring, characterizing, and reporting of regional haze visibility impairment that is representative of all mandatory Class I areas within the state. This monitoring strategy must be coordinated with the monitoring strategy required in 40 CFR 51.305 for RAVI. Compliance with this requirement may be met through participation in the IMPROVE network. Since the monitors used for the Guadalupe Mountains and Big Bend are IMPROVE monitors, we have determined that Texas has satisfied this requirement.[23] Section 51.308(d)(4)(i) requires the establishment of any additional monitoring sites or equipment needed to assess whether reasonable progress goals to address regional haze for all mandatory Class I areas within the state are being achieved. We approve of Texas' determination under this section that the IMPROVE network monitors that are already in place are adequate to assess Texas' reasonable progress goals.

Section 51.308(d)(4)(ii) requires that Texas establish procedures by which monitoring data and other information are used in determining the contribution of emissions from within Texas to regional haze visibility impairment at mandatory Class I areas both within and outside the state. The monitors at Big Bend and the Guadalupe Mountains are operated through the IMPROVE monitoring program, which is national in scope, and other states have similar monitoring and data reporting procedures, ensuring a consistent and robust monitoring data collection system. Section 51.308(d)(4)(iv) requires that the SIP must provide for the reporting of all visibility monitoring data to the Administrator at least annually for each mandatory Class I area in the state. Section 51.308(d)(4)(vi) also requires that Texas provide for other elements, including reporting, recordkeeping, and other measures, necessary to assess and report on visibility. We are finalizing our determination that Texas has met these requirements through participation in the IMPROVE program.

Section 51.308(d)(4)(v) requires that Texas maintain a statewide inventory of emissions of pollutants that are reasonably anticipated to cause or contribute to visibility impairment in any mandatory Class I area. The inventory must include emissions for a baseline year, emissions for the most recent year for which data are available, and estimates of future projected emissions. Texas must also include a commitment to update the inventory periodically. As discussed in the proposal, Texas has provided in the SIP a baseline emission inventory, estimates of future emissions, and emissions for the most recent year for which data was available at the time the SIP was developed.[24] We approve the portion of the Texas regional haze SIP that addresses this requirement.

We also approve Texas' coordination with the Federal Land Managers (FLMs) under 40 CFR 51.308(i). As detailed in our proposal, Texas has satisfied these requirements through communications with the FLMs, providing for review of the draft Texas regional haze SIP by the FLMs, and describing how all FLM comments were addressed in the SIP. Texas also provided procedures for continuing consultations.[25]

e. Best Available Retrofit Technology

We approve Texas' BART determinations for non-EGUs under 40 CFR 51.308(e). We are approving Texas' determination of which non-EGU sources in the state are BART-eligible and the determination that none of the state's BART-eligible non-EGU sources are subject to BART because they are not reasonably anticipated to cause or contribute to visibility impairment at any Class I areas. We reviewed the various modeling techniques utilized by the TCEQ in evaluating and screening out the BART-eligible non-EGU sources and we concur with the results of analysis.[26] We are approving the provisions in Texas' BART rules at 30 Tex. Admin. Code (TAC) 116.1500–116.1540, with the exception of 30 TAC 116.1510(d), which contains regulatory language addressing EGUs' reliance on CAIR to meet the BART requirements.

However, we are not finalizing our proposed actions with regard to the state's BART-eligible EGU sources. As described above, we issued a limited disapproval of the Texas regional haze SIP in 2012 because of Texas' reliance on CAIR to meet certain requirements of the regional haze program. To address the deficiencies in Texas' plan arising from its reliance on CAIR to meet the SO_2 and NO_X BART requirements for its EGUs, we proposed to substitute reliance on CSAPR. We previously determined that CSAPR would provide for greater reasonable progress than BART and established regulations that

[21] 79 FR 74833.

[22] 79 FR 74862.

[23] 79 FR 74863.

[24] 79 FR 74863.

[25] 79 FR 74864.

[26] 79 FR 74844.

allow certain states to rely on CSAPR to meet the SO_2 and NO_X BART requirements for EGUs.[27] CSAPR has been subject to extensive litigation, however, and on July 28, 2015, the D.C. Circuit Court issued a decision upholding CSAPR but remanding without vacating the CSAPR emissions budgets for a number of states.[28] Specifically, the court invalidated a number of the Phase 2 ozone-season NO_X budgets and found that the SO_2 budgets for four states resulted in over-control for purposes of CAA section 110(a)(2)(D)(i)(I)(i). Texas' ozone-season NO_X budget and SO_2 budget are both involved with this remand, and we are currently in the process of determining the appropriate response to the remand. Given the uncertainty arising from the remand of Texas' CSAPR budgets, we have concluded that it would not be appropriate to finalize our proposed determination to rely on CSAPR as an alternative to SO_2 and NO_X BART for EGUs in Texas at this time. We note that some of the sources for which we are finalizing SO_2 controls in this action are also potentially subject to the BART requirements. Should we determine in the future that it is necessary to perform source-specific BART determinations for these sources instead of relying on CSAPR, we anticipate that the SO_2 controls we are finalizing today, which are currently the most stringent available, will also be sufficient to satisfy the SO_2 BART requirement.

In addition, we note that we proposed to approve Texas' determination that for its EGUs no PM BART controls were appropriate, based on a screening analysis of the visibility impacts from just PM emissions and the premise in our proposal that EGU SO_2 and NO_X were covered separately by participation in CSAPR allowing consideration of PM emissions in isolation. Because of the CASPR remand and resulting uncertainty regarding SO_2 and NO_X BART for EGUs, we have also decided not to finalize our proposed approval of Texas' PM BART determination. We will address PM BART for EGUs in Texas in a future rulemaking as well.

f. Interstate Visibility Transport

The EPA is also disapproving portions of several separate infrastructure SIP revisions submitted by Texas for the purpose of addressing the requirements of the CAA regarding interference with other states' programs for visibility protection (interstate visibility transport). Section 110(a) of the CAA directs states to submit a SIP that provides for the implementation, maintenance, and enforcement of each NAAQS, which is commonly referred to as an infrastructure SIP. Among other things, CAA 110(a)(2)(D)(i)(II) requires that SIPs contain adequate provisions to prohibit interference with measures required to protect visibility in other states. We have concluded that to meet the requirements of CAA section 110(a)(2)(D)(i)(II): (1) Texas may not rely on its regional haze SIP, which relied heavily upon CAIR, to ensure that emissions from Texas do not interfere with measures to protect visibility in nearby states and (2) additional control of SO_2 emissions in Texas is needed to prevent interference with measures required to be included in the Oklahoma SIP to protect visibility. Because the Texas regional haze SIP does not ensure that Texas emissions would not interfere with measures required to be included in the SIP for any other state to protect visibility, as required by section 110(a)(2)(D)(i)(II) of the Act, we are taking final action to disapprove portions of the Texas SIP submittals that address CAA provisions for prohibiting air pollutant emissions from interfering with measures required to protect visibility in any other state for the 1997 $PM_{2.5}$, 2006 $PM_{2.5}$, 1997 ozone, 2008 ozone, 2010 NO_2, and 2010 SO_2 NAAQS. Specifically, we are disapproving portions of the following SIP submittals made by Texas for new or revised NAAQS:

- April 4, 2008: 1997 8-hour Ozone, 1997 $PM_{2.5}$ (24-hour and annual)
- May 1, 2008: 1997 8-hour Ozone, 1997 $PM_{2.5}$ (24-hour and annual)
- November 23, 2009: 2006 24-hour $PM_{2.5}$
- December 7, 2012: 2010 NO_2
- December 13, 2012: 2008 8-hour Ozone
- May 6, 2013: 2010 1-hour SO_2

We proposed to rely on CSAPR and the emission reductions required by our FIP for Texas to address these deficiencies in Texas' SIP submittals, but we have determined that it is not appropriate to finalize this determination at this time. Again, given the uncertainty following the D.C. Circuit Court's partial remand of the CSAPR budgets, we do not consider it appropriate to rely on CSAPR at this time to address the deficiencies on the Texas SIP, included those associated with interstate visibility transport obligation with respect to visibility. Therefore, this action does not finalize the portion of our proposed FIP addressing Texas' visibility transport obligations, as that portion of the FIP would have partially relied on CSAPR. We will address the visibility transport requirements for Texas in a future rulemaking, once the issues surrounding the partial remand are resolved.

2. Oklahoma Reasonable Progress Goals

We are taking final action to disapprove the reasonable progress goals established by Oklahoma, and we are approving one portion and disapproving the other portions of the Oklahoma regional haze SIP that address the requirements of § 51.308(d)(1). We find that Oklahoma's flawed consultation with Texas denied it the knowledge it needed—the extent to which cost-effective controls were available for those sources or groups of sources in Texas with the greatest potential to impact visibility at the Wichita Mountains—in order to properly construct its reasonable progress goal for the Wichita Mountains. Oklahoma and Texas discussed the significant contribution of sources in Texas to visibility impairment at the Wichita Mountains during the interstate consultation process required by the Regional Haze Rule. The results of the CENRAP analysis demonstrated that Texas point sources, and in particular EGUs in northeast Texas, have significant visibility impacts on the Wichita Mountains and that cost-effective controls were potentially available for some of these sources. However, Oklahoma did not pursue the point in its consultations with Texas under § 51.308(d)(1)(iv). Oklahoma did not have adequate information to establish its reasonable progress goal for the Wichita Mountains, and should have requested that the TCEQ further investigate these sources or requested additional reductions from Texas sources to ensure that all reasonable measures to improve visibility were included in Texas' long term strategy and incorporated into Oklahoma's reasonable progress goals for the Wichita Mountains. Furthermore, because of the flawed consultations with Texas, Oklahoma did not consider the emission reduction measures necessary to achieve the uniform rate of progress for the Wichita Mountains and did not adequately demonstrate that the reasonable progress goals it established were reasonable based on the four statutory factors under § 51.308(d)(1)(ii).[29] We therefore take final action to disapprove the reasonable progress goals as established by Oklahoma, and the portion of the Oklahoma regional haze SIP that addresses the requirements of

[27] 77 FR 33642.

[28] *EME Homer City Generation* v. *EPA,* 79 F.3d 118 (D.C. Cir.).

[29] 79 FR 74871, 74872.

§ 51.308(d)(1)(i) through (v) with respect to Oklahoma's establishment of its reasonable progress goals for the Wichita Mountains.

Under § 51.308(d)(1)(vi), Oklahoma may not adopt a reasonable progress goal that represents less visibility improvement than is expected to result from implementation of other requirements of the CAA during the applicable planning period. As discussed in our proposal, we find that Oklahoma's reasonable progress goals for 2018, based on the CENRAP model projections, represent at least as much visibility improvement as was expected to result from implementation of other requirements of the CAA (*i.e.,* requirements other than regional haze) during the applicable planning period.[30] In this action we are approving the portion of the Oklahoma regional haze SIP that addresses the requirement under § 51.308(d)(1)(vi).

3. Federal Implementation Plan

As explained above, we have identified a number of deficiencies in the SIP revisions submitted by Texas and Oklahoma to address the CAA's regional haze requirements and are finalizing partial disapproval of those plans. Accordingly, in this action we are also finalizing a FIP to address the deficiencies identified by our partial Texas SIP disapproval, except for those identified in our prior disapproval of the provisions in the Texas SIP addressing the EGU BART requirements. In this rulemaking, we are also disapproving those portions of the Texas SIP addressing the interstate visibility transport provisions of section 110(a)(2)(D)(i)(II), and are also not finalizing a FIP to address these deficiencies.

a. Four-Factor Analysis

During our review of the reasonable progress and long-term strategy provisions of the Texas regional haze SIP, we realized that a more in-depth analysis of Texas sources was needed to determine whether additional measures should be required to ensure reasonable progress. Although our technical approach is more fully described in our proposal [31] and in our TSDs,[32] it can be summarized as follows:

- We used an analysis known as Q/d (*i.e.,* annual emissions divided by the distance between the source and Class I area) as an initial screening test on over 1,600 facilities in Texas to determine which of these sources have the greatest potential to impact visibility at Class I areas. We identified 38 facilities (many facilities had multiple units) that were potentially the largest contributors to visibility impairment at downwind Class I areas.
- We realized that, due to the particular challenges presented by the geographic distribution and number of sources in Texas and the ability of a full photochemical model to assess visibility impacts on the 20% worst days, CAMx photochemical modeling [33] was better technically suited to our needs than the more widely used CALPUFF model.[34] We therefore contracted to have CAMx source apportionment modeling performed to determine which, if any, of these facilities had significant impacts.
- The CAMx modeling revealed that a relative handful of the point sources in Texas (less than 1%) were responsible for a large percentage of the visibility impairment at impacted Class I areas.
- Based on our consideration of these modeled visibility impacts, we determined that nine facilities (with 21 units) merited further modeling to assess what the visibility benefits might be from requiring emission reductions at these units. We modeled high and low emissions scenarios that spanned the available control scenarios for each unit.

After identifying the sources with the largest visibility impacts at the three Class I areas of interest, and modeling the estimated visibility benefits corresponding to a robust range of potential controls, we considered whether controls on these sources would be necessary to ensure reasonable progress. As required by the CAA and the Regional Haze Rule, we took into account the following factors: [35] (1) Time necessary for compliance, (2) energy and non-air quality environmental impacts of compliance, (3) remaining useful life, and (4) the costs of compliance. This analysis is commonly referred to as a ''four factor analysis.'' Our Reasonable Progress Guidance [36] notes the similarity between some of the reasonable progress factors and the BART factors and suggests that the BART Guidelines be consulted regarding the consideration of costs, energy and non-air quality environmental impacts, and remaining useful life. We therefore relied upon our BART Guidelines for assistance in assessing the reasonable progress factors, as applicable.

We noted that, with one exception,[37] the issues relating to three of these factors—compliance time, energy and non-air quality environmental impacts, and remaining useful life—were common to all of the units we analyzed. Specifically, with the exception of the two units at the Tolk facility, these three factors did not present any issues that would impact the selection of the controls we analyzed. As a result, we proceeded to analyze the remaining factor, the costs of compliance.

A number of the sources with the largest visibility impacts had units with no current SO_2 controls. For each of these units, we analyzed Dry Sorbent Injection (DSI) at both a 50% control level and at either a 80% or 90% control level (depending on the type of particulate controls employed at the unit), thus bracketing our analyses between moderate and maximum levels of control. We also analyzed Flue Gas Desulfurization (FGD or ''scrubbers'') at these units. For both Spray Dryer Absorption (SDA—a type of dry scrubber), and wet FGD scrubbers, we analyzed control levels slightly below the maximum level of control these technologies have been demonstrated as capable of achieving at other EGUs.[38] We then adapted our Integrated Planning Model (IPM) [39] cost algorithms that had been developed for DSI, SDA, and wet FGD and performed our cost analyses for potential controls on these units.

[30] 79 FR 74870.

[31] 79 FR 74873.

[32] See Cost TSD and FIP TSD for detailed discussion of our technical approach.

[33] CAMx is a photochemical grid model (Comprehensive Air Quality Model with Extensions). CAMx model code and user's guide can be found at *http://www.camx.com/download/default.aspx.* Model code used in our analysis is available with the modeling files.

[34] Note that our reference to CALPUFF encompasses the entire CALPUFF modeling system, which includes the CALMET, CALPUFF, and CALPOST models and other pre and post processors. The different versions of CALPUFF have corresponding versions of CALMET, CALPOST, etc. which may not be compatible with previous versions (*e.g.,* the output from a newer version of CALMET may not be compatible with an older version of CALPUFF). The different versions of the CALPUFF modeling system are available from the model developer at *http://www.src.com/verio/download/download.htm.*

[35] CAA Section 169A(g), Section 51.308(d)(1)(i)(A).

[36] Guidance for Setting Reasonable Progress Goals Under the Regional Haze Program, U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, Air Quality Policy Division, Geographic Strategies Group, Research Triangle Park, NC. See section 5.0.

[37] Our initial analysis of the Tolk facility indicated a potential shortage of water, meriting a special consideration of the energy and non-air quality environmental impacts of compliance.

[38] We analyzed SDA at 95% control with a floor of 0.06 lbs/MMBtu, and wet FGD at 98% control with a floor of 0.04 lbs/MMBtu.

[39] Documentation regarding our IPM Model can be found here: *http://www2.epa.gov/airmarkets/power-sector-modeling.*

Some of the units we analyzed were already fitted with underperforming [40] wet FGDs. For each of these units, we conducted control cost analyses for upgrading those scrubbers, using site-specific information obtained from the facilities under the authority provided by CAA section 114. Because the information we obtained was claimed as CBI, and our subsequent analyses that relied on it are also protected, we cannot share them with the public. However, our analyses were available for review by the affected facilities. Similarly, our responses to comments that incorporate information subject to CBI claims are in a separate document available to the CBI claimants that is part of the administrative record of this action but is not available for public review.

We also considered projected visibility benefits in our analysis. As we previously stated in proposing to take action on an Arizona regional haze SIP: [41]

> While visibility is not an explicitly listed factor to consider when determining whether additional controls are reasonable, the purpose of the four-factor analysis is to determine what degree of progress toward natural visibility conditions is reasonable. Therefore, it is appropriate to consider the projected visibility benefit of the controls when determining if the controls are needed to make reasonable progress.

Having identified the sources that have the greatest visibility impacts on the three Class I areas of interest, the visibility benefits that could be obtained by controlling those sources, and the costs of potential controls, we developed a strategy to determine which sources, if any, should be controlled under the reasonable progress and long-term strategy provisions of the CAA and Regional Haze Rule. To make this determination, we took into account the cost-effectiveness ($/ton of emissions removed) of the potential controls along with their projected visibility benefits. The ample precedent of other SIPs and FIPs has established a range of cost-effectiveness values within which controls have generally been required to meet provisions of the Regional Haze Rule. All of the new DSI, SDA, and wet FGD controls and upgraded scrubber controls we costed easily fell within this range. In fact, the highest cost-effectiveness value for the controls we analyzed was $3,221/ton for the Tolk Unit 172B SDA, a value that is less than the cost threshold adopted by Texas, after adjusting for the escalation of costs over time.[42] For sources other than Tolk, all of the controls we are requiring are more cost-effective than Texas' $2,700/ton threshold, even without an adjustment.

As explained above, due to the challenges presented by the geographic distribution and number of sources in Texas and the ability of a full photochemical model to assess visibility impacts on the 20% worst days, we determined that the CAMx photochemical model was best suited to our needs. While CALPUFF modeling was often used for assessing visibility benefits in other regional haze SIP actions, the large transport distances in Texas and our concerns about the technical capabilities of CALPUFF made the use of CALPUFF impractical.[43] As we have discussed in our FIP TSD and our separate RTC document, the results of our CAMx modeling cannot be directly compared to the results of CALPUFF modeling, which was used in the vast majority of other BART determinations and some reasonable progress determinations, because of differences between the models, model inputs, and metrics used.[44] Many of these differences result in CAMx modeled visibility impacts and benefits that are much lower than the CALPUFF modeled visibility impacts and benefits relied on in other actions. For a more thorough explanation of this complex issue, please refer to our FIP TSD and discussion in the RTC document. As a result, we were unable to rely on prior visibility analyses based on the use of CALPUFF in other actions as precedent for assessing the results of our CAMx visibility analysis in this action.[45]

To evaluate the projected visibility benefits of controls in our cost evaluation, we considered a number of metrics, such as change in deciviews under 2018 projected levels of air pollution at the three Class I areas and under estimated natural visibility conditions, change in light extinction, and change in the percentage of total light extinction.[46] We also considered the visibility benefit of emission reductions from recent actual emission levels versus CENRAP 2018 projected emission levels at these sources. As we discuss further in our FIP TSD and in responses in our RTC document, to provide context regarding the significance of individual source impacts, we compared the individual source impacts with CENRAP source apportionment modeling results for impacts from all emission sources within a state and impacts from all emission sources within a state within a specific source type. We also compared these individual source impacts to the impact levels used by the states for triggering consultation with another state about its overall impacts, and the estimated range of anticipated visibility benefits resulting from required controls in other actions.[47] Ultimately, after considering all four factors, we identified a set of reasonable controls for the first planning period for those sources with the largest visibility impacts that would provide for meaningful visibility improvements towards the goal of natural visibility conditions.

After extending our public comment period from the original date of February 17, 2015, to an extended date of April 20, 2015, we considered and responded to thousands of comments both for and against our proposal, the

[40] By ''underperforming,'' we mean scrubber systems that are meeting their permit limits, but are capable of achieving greater levels of control through increased utilization and optimization.

[41] See 79 FR 9353 n.137. We also used the same reasoning in our final action on the Arizona regional haze SIP. See 79 FR 52420.

[42] Texas used a $2,700/ton cost-effectiveness threshold, without regard to visibility benefit. While we found flaws in the way Texas established and used this threshold, it is illustrative of the cost-effectiveness of the controls required in this rulemaking. Conservatively escalating the $2,700/ton value from when it was first developed for the CAIR rule, which was finalized on March 10, 2005, to the time of our analysis, which was conducted in 2014, results in a value of $3,322/ton (i.e., the Chemical Engineering Plant Cost Index for 2005 = 468.2, and that for 2014 = 576.1; $2,700 × 576.1/468.2 = $3,322).

[43] The TCEQ conducted BART screening modeling with CAMx for the majority of the BART-eligible sources in Texas. The TCEQ requested to use CAMx instead of CALPUFF because of the advantages of CAMx to evaluate many sources individually in one or two modeling runs and the technical advantages of CAMx over CALPUFF when large distances are involved. As discussed in a response to comment in the modeling section of this document, we approved the TCEQ's approach of using CAMx for BART screening in 2007.

[44] See the Modeling section of the RTC document and our FIP TSD, beginning on page A–35, in which we explain why key differences in CALPUFF for BART and CAMx modeling for RP preclude the comparison of their respective results. Some of the major differences are: (1) CALPUFF uses maximum 24-hour emission rates, while CAMx uses annual average emission rates; (2) CALPUFF focuses on the day with the 98th percentile highest visibility impact from the source being evaluated, whereas CAMx focuses on the average visibility impacts across the 20% worst days regardless of whether the impacts from a specific facility are large or small; and (3) CAMx models all sources of emissions in the modeling domain, which includes all of the continental U.S., whereas CALPUFF only models the impact of emissions from one facility without explicit chemical interaction with other sources' emissions.

[45] Many commenters alleging inconsistency with our previous actions failed to appreciate this point and attempt to compare directly CALPUFF results to CAMx modeled results.

[46] For a full discussion on our review of all the modeling results, and factors that we considered in evaluating and weighing all the results, precedents, and other policy concerns please see Appendix A of our FIP TSD.

[47] See our FIP TSD at A–75.

most significant of which we summarize in section II below. While these comments resulted in some adjustments to our cost-effectiveness estimates for our proposed scrubber upgrades, ultimately these changes were not so significant as to change our proposed control decision. After careful consideration of all of the comments and the information provided, we find that the units and the control levels should be finalized as proposed.

b. Final SO_2 Emission Limits

As discussed further in our FIP TSD,[48] our emission limits are based on the installation of scrubber retrofits, scrubber upgrades, and in the case of San Miguel, the continued operation of its already performed scrubber upgrade. Consistent with our proposal, the final FIP requires that the SO_2 emission limits contained in Table 1 below be met on a 30 BOD period basis.

TABLE 1—FINAL 30-BOILER-OPERATING-DAY SO_2 EMISSION LIMITS

Unit	Final SO_2 emission limit (lbs/MMBtu)
Scrubber Upgrades:	
Sandow 4	0.20
Martin Lake 1	0.12
Martin Lake 2	0.12
Martin Lake 3	0.11
Monticello 3	0.06
Limestone 2	0.08
Limestone 1	0.08
San Miguel*	0.60
Scrubber Retrofits:	
Big Brown 1	0.04
Big Brown 2	0.04
Monticello 1	0.04
Monticello 2	0.04
Coleto Creek 1	0.04
Tolk 172B	0.06
Tolk 171B	0.06

*As we noted in our proposal, we do not anticipate that San Miguel will have to install any additional control in order to comply with this emission limit.

As we discuss in our proposal,[49] we find that five years is an adequate amount of time to allow for the installation of scrubber retrofits, and three years is an adequate amount of time to allow for the installation of scrubber upgrades. We also find that one year is an adequate amount of time for compliance for San Miguel, for which we do not anticipate the need for the installation of any additional equipment. We are therefore finalizing our requirements as proposed providing that compliance with the limits in Table 1 be achieved within:

- Five years of the effective date of our final rule for Big Brown Units 1 and 2, Monticello Units 1 and 2, Coleto Creek Unit 1, and Tolk Units 171B and 172B.
- Three years of the effective date of our final rule for Sandow 4; Martin Lake Units 1, 2, and 3; Monticello Unit 3; and Limestone Units 1 and 2.
- One year of the effective date of our final rule for San Miguel.

c. Treatment of Potential Error in Scrubber Upgrade Efficiency Calculations

In the Cost TSD that accompanied our proposal, we discussed how we calculated the SO_2 removal efficiency of the units we analyzed for scrubber upgrades.[50] We noted that, due to a number of factors that we were unable to accurately quantify, our calculations of current removal efficiencies could contain some error. Based on the results of our scrubber upgrade cost analysis, however, we did not believe that any such errors, if present, would affect our proposed decision to require the scrubber upgrades because they were all cost-effective (low $/ton of emissions removed). In other words, were we to make reasonable adjustments in the additional tons removed under the FIP limits to account for any potential error in our calculation of current scrubber removal efficiencies, we would still propose to upgrade these SO_2 scrubbers. After considering comments and other information submitted by the facility owners in response to our proposal, and as discussed more fully in our responses to comments on cost in the RTC document and section III below, we continue to conclude that upgrading an underperforming SO_2 scrubber is one of the most cost-effective pollution control measures a coal-fired power plant can implement to improve visibility at Class I areas.

We also proposed that the units required to conduct scrubber upgrades must meet SO_2 emission limits based on 95% removal in all cases. This removal efficiency is below the upper end of what an upgraded wet SO_2 scrubber can achieve, which is 98–99%, as we noted in our Cost TSD. We also noted that a 95% removal efficiency assumption provides an adequate margin of error, such that all of the units should be able to comfortably attain the emission limits we proposed. However, for the operator of any unit that disagreed with us on this point, our proposal included a pathway for such operators to seek and for us to consider revised emission limits in this final action by submitting specific comments on the issue and taking other specific steps.[51] We did not receive any comments from an owner or operator that was interested in using this pathway to potentially obtain a modified SO_2 emission limit. While we remain open to discussions concerning this procedure, we are finalizing the emission limits and compliance schedule for the affected units as proposed.

Similarly, to ensure that San Miguel can meet our final FIP emission limitation, we are finalizing the following compliance option for the owner and operator of San Miguel as an alternative to the final emission limit of 0.60 lbs/MMBtu based on a 30 day BOD average:

- Install a CEMS at the inlet of the scrubber system. The 30 BOD SO_2 average from the existing outlet CEMS must read at or below 6.0% (94% control) of a 30 BOD SO_2 average from the inlet CEMS.

By no later than its compliance date, San Miguel must inform us in writing of its decision to select this option for compliance. The FIP provides automatically for this compliance option and therefore if San Miguel chooses it, no SIP revision submittal is required from Texas.

d. Natural Conditions for the Texas Class I Areas

Consistent with our proposal and as discussed further in our FIP TSD,[52] we are finalizing the natural conditions for the Guadalupe Mountains and Big Bend as follows:

TABLE 2—NATURAL CONDITIONS (NC II) FOR THE GUADALUPE MOUNTAINS AND BIG BEND

Class 1 Area	20% Best days (dv)	20% Worst days (dv)
Guadalupe Mountains	0.99	6.65
Big Bend	1.62	7.16

We recommend that the State of Texas re-evaluate the natural conditions for its Class I areas in its next regional haze SIP in consultation with us and the FLMs.

[48] See our FIP TSD, Section 4.4 and 4.5. Our Cost TSD develops the bases for the costs and emission limits.

[49] 79 FR 74823.

[50] See Section 6 of our Cost TSD.

[51] 79 FR 74885.

[52] See discussion beginning on 79 FR 74885, and section 10 of our FIP TSD.

e. Calculation of Visibility Impairment for the Texas Class I Areas

Consistent with our proposal and as discussed further in our FIP TSD,[53] our final recalculated natural visibility conditions, and our calculation of visibility impairment for the Guadalupe Mountains and Big Bend are found in the table below. We recalculated the number of deciviews by which baseline visibility conditions exceed natural visibility conditions for these Class I areas pursuant to § 51.308(d)(2)(iv)(A). Specifically, in our calculations, we replaced Texas' calculations of natural visibility conditions for its Class I areas with the adjusted default values (NC II), as discussed in our proposal. We then determined the amount the baseline visibility values exceeded the natural visibility conditions to calculate visibility impairment for each area. We are finalizing the following estimates of visibility impairment for the Guadalupe Mountains and Big Bend:

TABLE 3—REVISED VISIBILITY METRICS FOR THE CLASS I AREAS IN TEXAS

Class I Area	Most Impaired (dv)	Least Impaired (dv)
	Baseline Visibility Conditions, 2000–2004	
Big Bend	17.30	5.78
Guadalupe Mountains	17.19	5.95
	Natural Visibility Conditions	
Big Bend	7.16	1.62
Guadalupe Mountains	6.65	0.99
	Extent Baseline Exceeds Natural Visibility Conditions	
Big Bend	10.14	4.16
Guadalupe Mountains	10.54	4.96

f. Consideration of the Uniform Rates of Progress

Consistent with our proposal and as discussed further in our FIP TSD,[54] we are finalizing the uniform rates of progress for the 20% worst days for the Guadalupe Mountains and Big Bend contained in Table 4 below. Specifically, in our calculations, we replaced Texas' calculations of natural visibility conditions for its Class I areas with the adjusted default values (NC II), as discussed in our proposal, and we recalculated the uniform rates of progress as follows:

TABLE 4—CLASS I AREA UNIFORM RATES OF PROGRESS

Class I Area	Baseline conditions (dv)	Annual improvement needed to meet URP (dv)	Visibility at 2018 (dv)	Improvement needed by 2018 (dv)	Natural conditions at 2064 (dv)
Big Bend	17.30	0.17	14.93	2.37	7.16
Guadalupe Mountains	17.19	0.18	14.73	2.46	6.65

g. Revised Reasonable Progress Goals for the Guadalupe Mountains and Big Bend

We are finalizing our technical analysis that was lacking in Texas' development of its reasonable progress goals for the Guadalupe Mountains and Big Bend. As discussed in our proposal and FIP TSD,[55] we are establishing new reasonable progress goals based on our technical analysis. The new reasonable progress goals are as follows:

TABLE 5—REASONABLE PROGRESS GOALS FOR 2018 FOR THE GUADALUPE MOUNTAINS AND BIG BEND

Class I area	20% Best days (dv)	20% Worst days (dv)
Guadalupe Mountains	5.70	16.26
Big Bend	5.59	16.57

[53] See discussion beginning on 79 FR 74886, and section 11 of our FIP TSD.

[54] See discussion beginning on 79 FR 74886, and section 12 of our FIP TSD.

[55] See discussion beginning on 79 FR 74886, and section 13 of our FIP TSD.

Our new reasonable progress goals for 2018 reflect only the additional estimated visibility benefit from the required controls anticipated to be in place by 2018, which are the scrubber upgrades. While the required scrubber retrofits will provide for additional visibility improvement at the Class I areas [56] that we consider necessary for reasonable progress towards natural visibility conditions, we do not anticipate these controls to be implemented until after 2018. As we note above, these estimates of future visibility conditions presume that CSAPR continues to be implemented and is a viable alternative to source-specific BART. As discussed above, given the uncertainty arising from the remand of some of the state CSAPR budgets, we have determined it would not be appropriate to finalize the portion of our FIP relying on CSAPR as an alternative to SO_2 and NO_X BART for EGUs in Texas. Should additional BART controls be required for any of the BART-eligible EGUs and should those controls in combination with other requirements on EGUs achieve emission reductions as of 2018 that are materially different than the emission reductions considered in quantifying the reasonable progress goals in this action, these reasonable progress goals would have to be revised at the same time any additional BART controls are proposed.

h. Revised Reasonable Progress Goals for the Wichita Mountains

We are finalizing our technical analysis that was lacking in Oklahoma's development of reasonable progress goals for the Wichita Mountains, including appropriate consideration of emission reduction measures in Texas that Oklahoma should have asked Texas explicitly to obtain during its consultations with Texas. We are establishing new reasonable progress goals, as discussed in more detail in our proposal and FIP TSD,[57] based on our technical analysis and accounting for the emission reductions required in Texas that we anticipate being in place by 2018. Consistent with our action regarding the Texas reasonable progress goals discussed in the previous section, our recalculated reasonable progress goals for 2018 in the table below reflect only the additional estimated visibility benefits from the required controls anticipated to be in place by 2018, which are the scrubber upgrades. While the required scrubber retrofits will provide for additional visibility improvement at the Class I areas,[58] we do not anticipate these controls to be implemented until after 2018. As we note above, these estimates of future visibility conditions presume that CSAPR is a viable alternative to source-specific BART. As discussed earlier in this document, given the uncertainty arising from the remand of some of the state CSAPR budgets, we have determined it would not be appropriate to finalize the portion of our FIP relying on CSAPR as an alternative to source-specific SO_2 and NO_X BART for EGUs in Texas. Should additional BART controls in Texas ultimately be required for any of the BART-eligible EGUs and should those controls in combination with other requirements on EGUs achieve emission reductions as of 2018 that are materially different than the emission reductions considered in quantifying the reasonable progress goals for Oklahoma in this action, the reasonable progress goals would have to be revised at the same time any additional BART controls are proposed.

TABLE 6—REASONABLE PROGRESS GOALS FOR 2018 FOR THE WICHITA MOUNTAINS

Class I Area	20% Best days (dv)	20% Worst days (dv)
Wichita Mountains	9.22	21.33

II. Summary and Analysis of Major Issues Raised by Commenters

We received both written and oral comments at the public hearings we held in Austin and Oklahoma City. We also received comments by the Internet and the mail. The full text of comments received from these commenters, except what was claimed as CBI, is included in the publicly posted docket associated with this action at *www.regulations.gov.* The CBI cannot be posted to *www.regulations.gov,* but is part of the record of this action. Our RTC document, which is also included in the docket associated with this action, provides detailed responses to all significant comments received, with the exception of those responses that rely on CBI and is a part of the administrative record for this action. The responses that rely upon CBI are in a separate document that is part of the record of this action but is not available for public review. In total, we received approximately 2,500 pages of significant comments. Below we provide a summary of the more significant comments received and a summary of our responses to them. Our RTC document is organized similarly to the structure present in this section (*e.g.,* Cost, Modeling, etc.). Therefore, if additional information is desired concerning how we addressed a particular comment, the reader should refer to the appropriate section in the RTC document.

A. General Comments

Comment: We received 4,500 comments in support of our rulemaking, specifically regarding the requirements that Texas coal-fired EGUs reduce SO_2 emissions. These comments were from members representing various organizations, members of Congress, officials of government agencies, and members of the general public. At the public hearings in Austin, Texas, and Oklahoma City, Oklahoma, over 100 people expressed general support for the plan. The speakers at the public hearings included members of various organizations and members of the general public. Representatives of three Federal Land Management agencies also wrote comments in support of our action. Many of these same commenters also asked us to consider the impacts of NO_X pollution and to consider additional coal-fired EGUs for control.

Response: We thank the commenters for participating in the rulemaking and acknowledge their support of this action. We address NO_X emissions in our modeling section below. We address the inclusion of additional coal-fired EGUs in our cost and modeling sections below.

Comment: We received five comment letters and emails from citizens and a representative from one organization that stated general opposition.

Response: These comments were too general to give us a basis for a specific response. Please see our detailed responses in this action and additional

[56] Table 44 of our proposal (79 FR 74887) shows the additional visibility benefit anticipated from the scrubber retrofits. For Guadalupe Mountains, we estimate an additional 0.12 dv benefit on the 20% worst days based on 2018 projected background conditions resulting in a visibility goal of 16.14 dv if all required controls were in place by 2018. For Big Bend, we estimate an additional 0.09 dv benefit on the 20% worst days based on 2018 projected background conditions resulting in a visibility goal of 16.48 dv if all required controls were in place by 2018. We note that Table 45 provides the same visibility benefit estimates based on reducing recent actual emissions rather than 2018 CENRAP projected emission levels.

[57] See discussion beginning on 79 FR 74886, and section 13 of our FIP TSD.

[58] Table 44 of our proposal (79 FR 74887) shows the additional visibility benefit anticipated from the scrubber retrofits. For Wichita Mountains, we estimate an additional 0.30 dv benefit on the 20% worst days based on 2018 projected background conditions resulting in a visibility goal of 21.03 dv if all required controls were in place by 2018. We note that Table 45 provides the same visibility benefit estimates based on reducing recent actual emissions rather than 2018 CENRAP projected emission levels.

detail in our RTC document, in which we provide substantial explanations and reasons for disapproving elements of the Texas and Oklahoma SIPs and finalizing our FIP.

Comment: As a general matter, a number of commenters took issue with our usages of the terms ''reasonable'' and ''significant'' as used in our proposal and TSDs and contended they were inappropriate or extra-statutory terms.

Response: We consider the general use of ''reasonable'' and ''significant'' in this action to be appropriate. The word ''reasonable'' is not extra-statutory in this action because it is part of the statutory term ''reasonable progress,'' see CAA ection 169A(g). In turn, ''significant'' may be used according to its ordinary meaning (as in our reference above to ''significant comments''). This word is elsewhere employed consistent with our guidance and previous actions. See, *e.g.,* our Reasonable Progress Guidance at 3–2. These terms are generally used in rulemaking actions, including use by Texas and Oklahoma in their regional haze actions.[59] We use these terms appropriately throughout this rulemaking action, for example, when explaining it was ''reasonable'' to expect great variation in the effectiveness of emission reductions between two sources given the difference in distances between these two facilities and the Class I areas, or when describing CENRAP visibility modeling as demonstrating that a ''significant'' portion of the visibility impacts to Class I areas in a number of states on the worst 20% days for both 2002 and 2018 were attributable to Texas sources.[60]

B. State and Federal Roles in the Regional Haze Program

Some commenters argued that our proposal to disapprove Texas' and Oklahoma's regional haze SIPs disregarded the primary role of the states under the CAA, the Regional Haze Rule, and relevant case law. We do not agree. Congress designed the CAA to provide for states to take the lead in developing SIPs but also required EPA to review SIPs for compliance with statutory and regulatory requirements. We recognize that states have the primary responsibility of drafting a SIP to address the requirements of the regional haze program. We also recognize that we have the responsibility of ensuring that the state plans, including regional haze SIPs, conform to the CAA requirements. We have determined that the Texas and Oklahoma SIPs do not meet certain elements of these Federal requirements and are accordingly partially disapproving these SIPs.

Additionally, our review of SIPs is not limited to a ministerial review and approval of a state's decisions. Some commenters argued that the principles of cooperative Federalism in the CAA require EPA to defer to states in their development of SIPs, so long as necessary statutory requirements are met. Commenters stated that our proposal ignores such limits and would impose FIPs that ignore the primary implementation role given to Texas and Oklahoma. We disagree with the commenters' arguments regarding cooperative Federalism. Under this framework, the CAA directs us to act if a state fails to submit a SIP, submits an incomplete SIP, or submits a SIP that does not meet the statutory requirements. Thus, the CAA provides us with a critical oversight role in ensuring that SIPs meet the CAA's requirements.

Commenters stated that Texas' plan was complete by operation of law, met all requirements, and that we had no authority to impose a FIP. We disagree. The commenters confuse the action of merely submitting a SIP and having it deemed complete with the action of submitting a SIP that complies with the applicable Federal requirements. We agree that the CAA gives each state flexibility in developing a SIP, but in doing so, it must ensure the SIP meets Federal requirements. We must review the state's SIP and determine whether it meets such Federal requirements. If it does not, we must disapprove it (or portions thereof), and adopt a FIP to address the disapproved parts. In undertaking such a review, we do not ''usurp'' the state's authority arbitrarily, as some commenters stated, but rather we ensure that such authority is reasonably exercised. In this instance, portions of the states' SIPs were not approvable for reasons discussed elsewhere in this document, the responses to comments, and the proposed rulemaking.

Some commenters argued that the appropriate remedy for a substantially inadequate plan under our Regional Haze Rule is periodic updates, as opposed to a FIP. We disagree. The Regional Haze Rule's requirements for comprehensive periodic revisions (*see* 40 CFR 51.308(f)) and periodic progress reports (*see* 40 CFR 51.308(g)) are very different from the authority to impose a FIP when there is a determination that a SIP is not approvable. As we have stated elsewhere, we have the authority and obligation to impose a FIP to fill in such gaps. The provisions of the Regional Haze Rule regarding states' ongoing responsibility to periodically revise their regional haze SIPs do not override this responsibility.

C. Our Clarified Interpretation of the Reasonable Progress and Long-Term Strategy Requirements

Several commenters criticized the aspect of our proposal that provided potential commenters and states with clarification regarding our interpretation of the reasonable progress and long-term strategy provisions found at 40 CFR 51.308(d)(1) and (3). Some of these commenters alleged that our proposal did not clarify an existing interpretation, but rather outlined a new one that was being applied to Texas and Oklahoma after the fact. They argued that the provisions in question require upwind states to include in their long-term strategy only those measures necessary to achieve the reasonable progress goals set by downwind states, regardless of whether the goals were based on sound analyses and adequate interstate consultation or reflect all reasonable control measures. Some commenters argued that upwind states have no obligation to conduct four-factor analyses with respect to downwind Class I areas at all. In essence, these commenters asserted that the only obligation that the CAA and Regional Haze Rule impose upon upwind states is a requirement to consult with their neighbors and make good on any commitments made during the consultation process. They further argued that their preferred interpretation is mandated by the plain language of the Regional Haze Rule, such that the interpretation laid out in our proposal is plainly erroneous and not entitled to judicial deference. Other commenters asserted the opposite. They agreed with our clarifications and argued that our interpretation of the provisions found at 40 CFR 51.308(d)(1) and (3) is not only reasonable, but mandated by the CAA and the plain language of the provisions themselves.

After carefully considering these comments, we stand by our clarified interpretation as outlined in the proposal. The alternative interpretations offered by some of the commenters are not in accord with the plain language of CAA sections 169A(b)(2) and (g)(1),

[59] *See, e.g.,* our proposal at 79 FR 74844 (noting our agreement with ''Texas' determination that was not reasonable to request additional controls from other states at this time'') and 74823 (describing how Oklahoma's response to public comments on its regional haze SIP ''acknowledged that sources in Texas had significant impacts on visibility in Wichita Mountains, but maintained that it did not have the regulatory authority to require emission reductions in other states'').

[60] 79 FR 74841 and 74854.

which require both upwind and downwind states to include in their SIPs ''emission limits, schedules of compliance and other measures as may be necessary to make reasonable progress toward the national goal'' and to determine what controls are necessary to make reasonable progress by considering the four statutory factors. The commenters' view that upwind states are not required to conduct four-factor analyses for downwind Class I areas is inconsistent with Texas' own view of the requirements of the CAA and the Regional Haze Rule. Texas itself conducted a four-factor analysis for downwind Class I areas (albeit a flawed one) and stated in its own response-to-comments document that it was required to do so.[61] Indeed, the commenters' alternative interpretations are premised largely on a fundamental misunderstanding of the regional haze planning process. The commenters seem to suggest that states set their reasonable progress goals first and then determine what controls are necessary to achieve them. In their view, if a downwind state sets a reasonable progress goal that does not assume emission reductions from an upwind state, then the upwind state has no obligation to include control measures in its long-term strategy. Such an interpretation is not consistent with the CAA, our regulations and guidance, or how such analyses are conducted in reality. To set their reasonable progress goals, states consider the anticipated visibility conditions at a Class I area in a future year. In order to do so, they must first determine the level of emission reductions that will result once the control measures necessary to make reasonable progress are installed and estimate the visibility benefit anticipated from those reductions. In determining the control measures necessary to make reasonable progress, states must conduct four-factor analyses, considering costs and other factors. If an upwind state were not required to participate or if emission reductions from upwind sources were not considered in this process, there would be no way for downwind states to set reasonable progress goals that account for all reasonable control measures.

[61] *See, e.g.,* Appendix 2–2 to the Texas Regional Haze SIP at 24 (''Further, a four-factor analysis is *necessary* for the set of sources in the respective areas of influence that impact *each* of the Class I areas that Texas' emissions impact.'') (emphases added) (''The TCEQ has used the four-factor analysis, *as required,* for the set of Texas sources impacting Class I areas, to determine whether all reasonable reductions have been required.'') (emphasis added).

D. Consideration of Visibility in the Reasonable Progress Analysis

Comment: Many commenters maintained that, unlike with BART, visibility is not one of the statutory or regulatory factors that states must consider in determining reasonable progress and setting reasonable progress goals. As a result, some commenters argued that EPA is not permitted to disapprove a state's four-factor analysis based on the manner in which a state considered visibility impacts or visibility benefits in determining reasonable progress. They argued that EPA's statutory role does not extend to dictating ''how'' a state considers the four factors, especially considering the flexibility states have when determining reasonable progress. Other commenters asserted that EPA placed too much weight on visibility, a non-statutory factor, in analyzing Texas' SIP and in promulgating a FIP. Some commenters alleged that states and EPA were barred from considering visibility in a reasonable progress analysis altogether. Several commenters suggested that, had we not considered visibility benefits when promulgating a FIP for Texas, we would not have required any SO_2 controls. One commenter cited to *WildEarth Guardians* v. *EPA* [62] to support its contention that neither the CAA nor the Regional Haze Rule requires source-specific analysis in the determination of reasonable progress. Other commenters cited to *American Corn Growers Ass'n* v. *EPA* [63] to support their assertion that we impermissibly isolated visibility as a factor and in so doing constrained authority Congress conferred on the states.

Response: We disagree with these comments. The commenters appear to be stating that states (or EPA when promulgating a FIP) either cannot or need not consider visibility in any way in determining reasonable progress and that we therefore must approve a state's reasonable progress goals and long-term strategy as long as all four mandatory reasonable progress factors are analyzed to some degree. This view is at odds with the overarching purpose of the CAA's visibility provisions. Congress declared as a national goal in CAA section 169A(a)(1) the ''prevention of any future, and the remedying of any existing, impairment of visibility in mandatory Class I Federal areas which impairment results from manmade air pollution.'' CAA section 169A(b)(2) required the Administrator to promulgate regulations to assure ''reasonable progress toward meeting the national goal.'' Thus, the entire purpose of the reasonable progress mandate is to achieve the national goal of natural visibility conditions at each Class I area.

CAA section 169A(g)(1) goes on to state that, in determining ''reasonable progress,'' states must consider four factors: ''the costs of compliance, the time necessary for compliance, and the energy and nonair quality environmental impacts of compliance, and the remaining useful life of any existing source subject to such requirements.'' This consideration is commonly referred to as the ''four-factor analysis.'' [64] The crux of the commenter's argument seems to be that, because this list of factors does not include visibility, states can ignore visibility altogether or, if they choose, consider it in any fashion they want.

While we agree that visibility is not one of the four mandatory factors explicitly listed for consideration in CAA section 169A(g)(1) or 40 CFR 51.308(d)(1)(i)(A), the term ''reasonable progress'' itself means reasonable progress towards the national goal of natural visibility conditions. The Supreme Court has stated that, ''[i]n determining whether Congress has specifically addressed the question at issue, a reviewing court should not confine itself to examining a particular statutory provision in isolation. The meaning—or ambiguity—of certain words or phrases may only become evident when placed in context. It is a 'fundamental canon of statutory construction that the words of a statute must be read in their context and with a view to their place in the overall statutory scheme.' A court must therefore interpret the statute 'as a symmetrical and coherent regulatory scheme' and 'fit, if possible, all parts into an harmonious whole.' '' [65]

To ensure a coherent regulatory scheme, we believe that states (or EPA when promulgating a FIP) can consider

[62] *WildEarth Guardians* v. *EPA,* 770 F.3d 919 (10th Cir. 2014).

[63] *Am. Corn Growers Ass'n* v. *EPA,* 291 F.3d 1 (D.C. Cir. 2002).

[64] Correspondingly, under § 51.308(d)(1) of the Regional Haze Rule, promulgated in response to this mandate, states must ''establish goals (expressed in deciviews) that provide for reasonable progress towards achieving natural visibility conditions'' for each Class I area within a state. Reasonable progress goals are interim goals that represent measurable, incremental visibility improvement over time toward the goal of natural visibility conditions. Section 51.308(d)(1)(i)(A) requires states to consider the four statutory factors when establishing their reasonable progress goals.

[65] *FDA* v. *Brown & Williamson Tobacco Corp.,* 529 U.S. 120, 132–33 (2000) (quoting *Davis* v. *Michigan Dept. of Treasury,* 489 U.S. 803, 809 (1989), *Gustafson* v. *Alloyd Co.,* 513 U.S. 561, 569 (1995), and *FTC* v. *Mandel Brothers, Inc.,* 359 U.S. 385, 389 (1959)).

visibility when determining reasonable progress in at least two ways. First, states can consider the visibility impacts of sources when determining what sources to analyze under the four-factor framework. CAA section 169A(b)(2) does not provide any direction regarding which sources or source categories a state should analyze when determining reasonable progress. Similarly, CAA section 169A(g)(1) refers to ''any existing source subject to such requirements,'' but unlike the BART provisions, does not identify which existing sources or source categories should be subject to reasonable progress requirements. Given this statutory ambiguity, we believe that allowing states to consider visibility impacts when determining the scope of the reasonable progress analysis is a reasonable interpretation of the statute ''as a harmonious whole.'' Accordingly, states can develop screening metrics that target those sources with the greatest visibility impacts for further analysis. Our 2007 guidance advocated this approach, and nearly all states, including Texas, used metrics like Q/d to consider the potential visibility impacts of their sources and screen out those sources with low visibility impacts.[66] We followed this same approach in our FIP by using both Q/d and a second metric based on a source's modeled percent contribution to total visibility impairment at impacted Class I areas. If states or we could not consider visibility impacts as a way of identifying which sources should be considered for additional controls, then states would have no rational way to differentiate between hundreds of sources that vary in distance from Class I areas, emit different visibility impairing pollutants in varying amounts, and are subject to diverse meteorological conditions that affect the transport of visibility-impairing pollutants. The result would be a cumbersome analysis encompassing hundreds of sources (or in the case of Texas, well over a thousand), many of which may have little if any impact on visibility in Class I areas. Congress could not have intended such an incongruous result.

Second, once a universe of sources has been identified for analysis, we believe that states can consider the visibility improvement that will result from potential control options when weighing the four statutory factors. Allowing consideration of visibility improvement is appropriate for several reasons. Most importantly, it aligns with Congress' national goal, which is to remedy existing impairment of visibility in Class I areas. While section 169A(g)(1) of the CAA contains a list of factors states *must* consider when determining reasonable progress, we do not believe that list is exclusive. As the Eighth Circuit Court acknowledged in *North Dakota* v. *EPA,* states can take visibility improvement into account when evaluating reasonable progress controls so long as they do so in a reasonable way.[67] We have iterated this position in previous regional haze actions. For example, in our final rule on the Montana regional haze SIP, we stated, ''We agree that visibility improvement is not one of the four factors required by CAA section 169A(g)(1) and 40 CFR 51.308(d)(1)(i)(A), however, it (along with other relevant factors) can be considered when determining controls that should be required for reasonable progress.'' [68] Similarly, in our final rule on the Arizona regional haze SIP, we concluded that, ''while visibility is not an explicitly listed factor to consider when determining whether additional controls are reasonable, the purpose of the four-factor analysis is to determine what degree of progress toward natural visibility conditions is reasonable. Therefore it is appropriate to consider the projected visibility benefit of the controls when determining if the controls are needed to make reasonable progress.'' [69]

Further, allowing states to consider visibility improvement alongside the four statutory factors ensures that only those cost-effective controls that will achieve reasonable visibility benefits are required during each phase towards the national goal. If states were not permitted to consider visibility improvement when conducting their control determinations, then states arguably would have to require all cost-effective controls during the first planning period (assuming no limiting energy or non-air quality environmental impacts) regardless of whether some of those controls would be far more beneficial than others.[70] Oddly, some of the commenters appear to be suggesting that, if we had not considered visibility benefits in our analysis, we would not have controlled certain sources. On the contrary, we decided not to require certain cost-effective controls in this planning period because they would not achieve as much benefit as other controls. If these commenters are correct and the consideration of visibility benefits is impermissible in a four-factor analysis, then we would have required all cost-effective controls, including those at the Parish and Welsh facilities.

We also note that Congress did not provide any direction as to how states should consider ''the costs of compliance'' when determining reasonable progress. One permissible way a state could ''consider'' costs is to compare them to prospective benefits. In other words, we believe the first statutory factor is capacious enough to allow for a comparison of cost-effectiveness to visibility improvement. Finally, we note that our 2007 guidance explicitly permits states to consider other relevant factors when conducting a four-factor analysis,[71] and many states, including Texas, did so. In conclusion, we believe that states are permitted, but not required, to consider visibility improvement alongside the four statutory factors when making their reasonable progress determinations, with the important caveat that they must do so in a reasonable fashion.

Some commenters alluded that visibility improvement is irrelevant to a four-factor analysis because Congress did not include it as one of the four factors, but did include it as a factor to be considered in determining BART. We do not find this reasoning to be persuasive. The sources that Congress subjected to the BART requirement (*i.e.,* sources grandfathered from the PSD requirement) were not necessarily sources that would have an impact on visibility impairment. As such, Congress included specific language in CAA sections 169A(b)(2)(A) and 169A(g)(2) to ensure that only those grandfathered sources that cause or contribute to visibility impairment and that would

[66] For example, in VISTAS states, to select the specific point sources that would be considered for each Class I area, VISTAS first identified the geographic area that was most likely to influence visibility in each Class I area and then identified the major SO_2 point sources in that geographic area. The distance-weighted point source SO_2 emissions (Q/d) were combined with the gridded extinction-weighted back-trajectory residence times. The distance-weighted (Q/d) gridded point source SO_2 emissions were then multiplied by the total extinction-weighted back-trajectory residence times on a cell-by-cell basis and then normalized. VISTAS Area of Influence Analyses, 2007, is available in the docket for this action.

[67] *North Dakota* v. *EPA,* 730 F.3d 750, 766 (8th Cir. 2013).

[68] 77 FR 57864, 57899, 57901; *see also* Montana Proposed Rule, 77 FR 23988, 24062.

[69] 79 FR 9318 n.137 (finalized based on this same reasoning at 79 FR 52420); TX TSD at 7 n.6; FIP TSD at 12; 79 FR 74874.

[70] We also note that practical implementation concerns could arise if a state as large and source-numerous as Texas required all cost-effective controls at once.

[71] ''In determining reasonable progress, CAA Section 169A(g)(1) requires States to take into consideration a number of factors. However, you have flexibility in how to take into consideration these statutory factors and any other factors that you have determined to be relevant.'' 2007 Guidance at 2–3, 4–2, and 5–1.

result in visibility improvement if controlled would be required to install BART. On the other hand, the national goal of achieving natural visibility conditions is central to the notion of reasonable progress, so Congress had no need to include language regarding visibility improvement in CAA section 169A(g)(1).

We also disagree with the commenters that we cannot disapprove a state's SIP where the state has considered visibility improvement in an unreasonable fashion. As the Eighth Circuit explained in *North Dakota,* ''[a]lthough the state was free to employ its own visibility model and to consider visibility improvement in its reasonable progress determinations, it was not free to do so in a manner that was inconsistent with the CAA.'' [72] Like the State of North Dakota, Texas chose to evaluate visibility improvement alongside the four statutory reasonable progress factors, but did so in an unreasonable way. We discuss several ways that Texas' consideration of visibility improvement in its reasonable progress determinations was unreasonable elsewhere in this document, in our proposal, and in our Texas TSD.[73] One point worth mentioning here, however, is that Texas estimated the visibility improvement of potential controls by making comparisons to degraded background conditions instead of to natural background conditions, which is precisely the same mistake that North Dakota made.[74] The end result of this and other errors in Texas' analysis was that Texas unreasonably concluded that the total cost of additional controls was not worth the visibility benefits of those controls and that no additional controls were reasonable for this planning period.[75] We are appropriately disapproving this portion of Texas' SIP. The fact that Texas' decision to evaluate visibility improvement was ''discretionary'' does not mean that Texas was free to exercise that discretion in an unreasonable manner.

We note that the Tenth Circuit's decision in *WildEarth Guardians* v. *EPA* does not address the issues present in this case. There, the Tenth Circuit Court merely held that the CAA does not require a state to conduct a source-specific reasonable progress analysis. The Court did not hold that a state is free to conduct any type of analysis irrespective of whether or not the analysis is reasonable. Nor did the Court hold that the CAA prevents states or the EPA from conducting a source-specific analysis if that approach is determined to be appropriate.

Finally, we disagree with the commenter that we elevated visibility improvement to a place of primary importance, either in disapproving Texas' SIP or in promulgating our FIP. The flaws with Texas' consideration of visibility benefits were only one aspect of our disapproval. Moreover, we stated on multiple occasions in our proposal that we considered all four statutory factors in our analysis. Our analysis does not give greater weight to one factor over another; rather, we considered all four factors fully, revealing that the cost factor, which included visibility improvement consideration, was the most determinative in our decisions. The *American Corn Growers Ass'n* v. *EPA* case is inapposite. There, the D.C. Circuit Court faulted how EPA assessed the statutory fifth factor of visibility improvement in a BART determination (not a reasonable progress determination) by using a regional, multi-source, group approach to assessing the visibility improvement factor, while assessing the other four statutory BART factors on a source-specific basis. Here, not only is the analysis at issue not being performed under BART, but we did not give greater weight to our consideration of visibility improvement within the cost factor, or consider the cost factor in a different fashion from the other three reasonable progress factors.

Comment: Some commenters stated that regional haze is the contribution of numerous emission sources to visibility impairment and that, while the contribution from any single source may be ''insignificant,'' the aggregate impact from all sources is significant. These commenters argued that, by using the Q/d screening metric, the EPA already took potential visibility impacts (and benefits of control) into account. They argued that the EPA cannot use visibility again during the four-factor analysis as an ''off-ramp'' to not control a source. Furthermore, the EPA should not break a facility down into its constituent parts because doing so can diminish each individual impact to the point where it becomes relatively insignificant. Such a ''divide and exempt'' approach is contrary to Congress' goal that Class I areas eventually return to natural visibility conditions. One commenter stated that the EPA should have conducted four-factor analyses for all 38 facilities identified in the Q/d analysis.

Response: We agree that regional haze is, by definition, visibility impairment caused by numerous emission sources. We also agree that, while some sources may have very small visibility impacts, aggregate impacts can be significant. However, while there are undoubtedly thousands of sources within Texas that individually have small contributions to regional haze, there are also many sources that, even in isolation, have relatively large visibility impacts. In this first planning period, we identified the most significant sources that impact visibility, determined whether cost-effective controls were available for these sources, and balanced the costs of those controls against their visibility benefits. As we discussed in more detail above, if we had adopted the commenters' suggestion and controlled all large sources where cost-effective controls were available, we likely would have controlled many additional sources. Given the iterative nature of the regional haze program, we think that it was a reasonable approach to require only those cost-effective controls with the largest benefits this planning period. We expect that Texas will control additional sources, which by then will be the largest contributors to impairment, during future planning periods.

As we explain further in supporting documents, we also disagree with the commenter's suggestion that we should have screened only by using the Q/d metric. A Q/d analysis compares a source's emissions and distance to nearby Class I areas to provide an initial estimate of the potential visibility impacts of those sources. After conducting our Q/d analysis, we then used photochemical modeling to estimate the visibility impacts of this set of sources in a much more refined manner that accounts for chemistry, meteorological conditions, and stack parameters in addition to emissions and location. The results of our modeling indicated that a subset of 38 facilities were the primary contributors to visibility impairment at each Class I area. We then used the modeling results to narrow the group of sources further because it was reasonable to conduct a

[72] *North Dakota,* 730 F.3d at 766.

[73] *See* Section B.2 of the Texas TSD and Section V.C.3 of our proposal (79 FR 74818).

[74] In contrast, Texas conducted a proper visibility analysis using natural background conditions elsewhere in its SIP when the state assessed the visibility impacts of its BART sources. *See* Texas Regional Haze SIP, Appendix 9–5 at 2–11 (''The source's HI [haze index] is compared to natural conditions to assess the significance of the source's visibility impact. EPA guidance lists natural conditions (bnatural) by Class I area in terms of Mm^{-1} (EPA, 2003b) and assumes clean conditions with no anthropogenic or weather interference. The visibility significance metric for evaluating BART sources is the change in deciview (del-dv) from the source's and natural conditions haze indices.'').

[75] Texas concluded, ''At a total estimated cost exceeding $300 million and no perceptible visibility benefit, Texas has determined that it is not reasonable to implement additional controls at this time.'' Texas regional haze SIP at 10–7.

full four-factor analysis only for the subset of sources with the largest facility-and unit-level visibility impacts, as described in detail in our supporting documents.

E. Consultation Between Oklahoma and Texas

Comment: The regulations require that Texas' long-term strategy reflect the emission reductions requested and agreed to by the CENRAP states. EPA points to no flaws in the CENRAP regional planning process in which Texas and Oklahoma participated together. The EPA asserts that the TCEQ should have provided information necessary to identify reasonable reductions, which the Regional Haze Rule does not require. Oklahoma did not request additional controls on Texas sources or disagree with Texas' determination that no additional controls were warranted during the first planning period.

Nonetheless, the EPA arbitrarily disapproved the Texas consultation process with Oklahoma without reference to its rules, guidance, and prior SIP approvals. The proposal never details what information Oklahoma lacked in establishing its reasonable progress goals, and EPA must provide a more adequate explanation of how additional information would have changed Oklahoma's ultimate determination that additional controls on Texas sources would not move the Wichita Mountains perceptibly closer to its regional haze goals.

Response: We disagree that participation alone in a Regional Planning Organization (RPO) process (here CENRAP) will always be enough to meet the requirements for consultation under the Regional Haze Rule. The rule does not negate the requirement that a state have a complete and technically adequate analysis so that consultations are well informed. The RPOs, such as CENRAP, provided technical analyses, including emission inventory development and air quality modeling to project future visibility conditions and additional information on sources of visibility impairment to facilitate consultations and support the development of the states' regional haze SIPs.

Although Texas participated in CENRAP, it retained the duty to do whatever additional analysis was necessary to fully address the requirements of the Regional Haze Rule for addressing its long-term strategy and setting its reasonable progress goals. While the long-term strategy requirements allow a state to rely on the RPO technical analysis, that is true only to the extent it provides the necessary information. A state must address any gaps in that analysis. For Texas, inadequate information existed not only for the reasonable progress analysis for its own Class I areas, but also for the long-term strategy development for addressing significant impacts at the Wichita Mountains. CENRAP was not required, nor did it provide state-specific analyses and information on the cost-effectiveness and visibility benefits of potential control strategies under consideration by each state to address the specific sources or groups of sources within that state that have the largest visibility impacts. Rather, CENRAP provided more general information on overall projected visibility conditions, potential controls and associated costs for some sources and the potential benefit of regional emission reductions to inform the development of potential control strategies that may require additional analysis.[76] For example, while the CENRAP analysis identified that impacts from EGUs in Texas were significant, it did not provide a refined analysis to fully assess the cost-effectiveness and visibility benefits of controlling those sources, including not providing information on the cost-effectiveness of scrubber upgrades for those sources with existing, underperforming scrubbers. As Texas states in its regional haze SIP, ''While Texas participates in CENRAP and benefits from the technical work coordinated by the RPO, Texas has sole responsibility and authority for the development and content of its Regional Haze SIP.'' [77]

Recognizing that the information made available by CENRAP indicated the significant impact of Texas emissions and potential for cost-effective controls, Texas used the CENRAP analysis as a starting point, and performed supplemental analysis for both its reasonable progress and long-term strategy demonstrations. However, that additional technical analysis performed by Texas was flawed and therefore did not provide the type of information necessary to fully evaluate the reasonableness of controls at Texas sources with the largest potential to impact visibility at its own Class I areas and the Wichita Mountains. Allowing this lack of adequate information to continue was a critical misstep for ODEQ in setting its reasonable progress goals, and a critical misstep for Texas when determining its fair share of emissions reductions under the long-term strategy requirement. The plain language of the CAA requires that states consider the four factors used in determining reasonable progress in developing the technical basis for the reasonable progress goals both in their own Class I areas and downwind Class I areas. Such documentation is necessary so that interstate consultations can proceed on an informed basis, and so that downwind states can properly assess whether any additional upwind emissions reductions are necessary to achieve reasonable progress at their Class I areas. Therefore, Texas had an obligation to provide appropriate information to Oklahoma so it could establish a proper progress goal for the Wichita Mountains. Further, Texas had an obligation to conduct an appropriate technical analysis, and demonstrate through that analysis (required under paragraph (d)(3)(ii)), that it provided its fair share of emissions reductions to Oklahoma. In summary, Texas was required through the consultation process to provide Oklahoma the information it needed to establish its reasonable progress goals for the Wichita Mountains, and it failed to do so.

Comment: Oklahoma possessed more than adequate information about impacts and potential controls but correctly decided it was not reasonable to request any further reductions from Texas sources during the first planning period. Oklahoma was in agreement with Texas on the goal and measures for the Wichita Mountains. EPA may disagree with that choice in hindsight and may wish Oklahoma's and Texas' agreement was different, but that is an unlawful basis for disapproving Oklahoma's reasonable progress consultation with Texas and disapproving Oklahoma's reasonable progress goals.

Response: While we agree that Oklahoma possessed more than adequate information from the CENRAP analyses about impacts from Texas sources at a certain level of aggregation, and some knowledge concerning potential controls for some of these sources, we do not agree that it was reasonable for Oklahoma to stop at this point. Despite the information it did have, Oklahoma never explicitly asked Texas for reductions even though there was clear evidence from the CENRAP analyses that Texas sources, particularly EGUs in northeast Texas, were

[76] CENRAP conducted a control sensitivity analysis to evaluate the impact of point source emission reductions across all CENRAP states given a maximum dollar per control level of $5,000/ton; however, the results ''were intended to be a starting point for control discussions that would require much greater refinement.'' Technical Support Document for CENRAP Emissions and Air Quality Modeling to Support Regional Haze State Implementation Plans, September 12, 2007 at 2–37).

[77] 2009 Texas Regional Haze SIP at 3–1.

significantly impacting the Wichita Mountains and that cost-effective controls were likely available on some of these sources.

The Regional Haze Rule required that Oklahoma use the consultation process under 40 CFR 51.308(d)(1)(iv) in the development of reasonable progress goals in tandem with Texas. Nevertheless, throughout the consultations, Oklahoma failed to explicitly request that Texas further investigate whether reasonable controls were available or that Texas reduce emissions from these significantly impacting sources to ensure that all reasonable measures to improve visibility were included in Texas' long-term strategy and incorporated into Oklahoma's reasonable progress goals for the Wichita Mountains. This failure resulted in the development of improper reasonable progress goals for the Wichita Mountains.

Comment: Even if EPA's disapproval of Oklahoma's reasonable progress goals were authorized and supported, that disapproval does not allow EPA to disapprove Texas' long-term strategy. Regardless of EPA's view of Oklahoma's reasonable progress goals for the Wichita Mountains, it is undisputed that Texas' SIP includes the measures necessary to secure Texas' agreed-to apportionment of emission reductions to meet the reasonable progress goals for the Wichita Mountains established by Oklahoma, and thus EPA must approve Texas' SIP.

Response: We disagree that disapproval of Oklahoma's reasonable progress goals for the Wichita Mountains does not allow us to disapprove Texas' long-term strategy. We are disapproving the Texas long-term strategy because the analysis underlying it is technically flawed. Because of these flaws, Texas' SIP submittal does not include all the measures necessary to secure its apportionment of the emission reductions needed to meet the progress goal that should account for all reasonable control measures for the Wichita Mountains, or its own Class I areas. We are disapproving the Oklahoma reasonable progress goals for the Wichita Mountains not because of the technically flawed Texas long-term strategy, but because Oklahoma's consultations with Texas were flawed, which prevented it from adequately developing its reasonable progress goals for the Wichita Mountains. Also, because Oklahoma's consultations with Texas were flawed, Oklahoma did not adequately consider the emission reduction measures necessary to achieve the uniform rate of progress for the Wichita Mountains and did not adequately demonstrate that the reasonable progress goals it established were reasonable based on the four statutory factors. See our previous responses concerning the comments on Texas allegedly meeting the ''agreed-to apportionment.''

Comment: EPA never raised any of the concerns it asserts and it never second-guessed the process or the data that the states were developing—as it does now, years after that process has been completed and on the eve of the next planning period. In truth, Texas and Oklahoma did exactly what EPA encouraged them to do.

Response: Our task under the CAA is to review a SIP once it is formally submitted by the state and determine if it meets the CAA and our rules. There is no requirement in the CAA that we must review, evaluate, and comment on a state's proposed SIP revision before it is formally submitted to us. Nevertheless, we note that we sent comment letters to Texas and Oklahoma during their public comment periods, raising many of the issues presented herein. We stated that Texas should specifically demonstrate that it included all measures necessary to obtain its share of the emission reductions necessary for achieving reasonable progress in the Wichita Mountains and document its technical basis. Furthermore, we stated that the Texas reasonable progress/long-term strategy technical analysis raised concerns about whether it appropriately evaluated whether there were additional reasonable controls available to help reduce its impact on the Wichita Mountains. For Oklahoma, we stated it did not appear that ODEQ actually requested reductions from Texas and we urged Oklahoma to ensure Texas was aware of its sources' impact and encourage reductions as necessary. In both letters, we stated that additional concerns would surface during the review of the final SIP submittals.

Comment: EPA's consultation disapprovals of Oklahoma and Texas are the first time EPA has disapproved a state regional haze consultation. This new approach of second-guessing regional agreements—years after they are reached and implemented—would undermine and chill the regional planning process, and discourage states from participating.

Response: We disagree that this is a new approach on the consultation requirements and we also disagree that our position undermines or chills the regional planning process. While our regulations allow states to work together in RPOs, like CENRAP, this is not a stopping point for states to fall back on as a rationale not to meet the CAA and Regional Haze Rule. We have not disapproved other states' reasonable progress/long-term strategy consultation processes because the particular facts of the situation for Texas and Oklahoma did not arise. We believe our clarification that upwind states have an obligation to reasonably assess potential control measures to address impacts in Class I areas in downwind states will encourage states to work together to address regional haze.

F. Source Category and Individual Source Modeling

Comment: EPA proposed to disapprove Texas' regional haze SIP because EPA determined that Texas was required to conduct a source-specific analysis of certain facilities to meet the reasonable progress requirements. EPA guidance and judicial precedent have stated that a source-specific analysis or source-by-source demonstration is not required to determine reasonable progress.

Response: We disagree with these comments as our proposal to disapprove the SIP was decidedly not based on the supposed use of a source category-based analysis by Texas. Therefore, these comments have not accurately described the proposed basis of disapproval. We understand many of these comments arose because our proposal included a statement that ''individual sources were not considered by the TCEQ.'' This statement was not offered to propose a basis for disapproval, but we understand it is susceptible to being taken out of context (particularly in consideration of the comments received). It is perhaps more plain to state that individual sources were not *effectively* considered by the TCEQ. As our proposal and the Texas SIP itself make clear, Texas did, in fact, partially evaluate controls for certain individual sources. In evaluating these controls, Texas employed a large, superficially refined control set consisting of a mix of large and small sources from a number of different source categories located within varying distances of Class I areas. It did assess individual source data for some factors such that we do not necessarily agree with commenters who brand it a ''source category analysis.''

Whatever its label, we proposed to disapprove Texas' reasonable progress analysis because it was flawed in several specific ways. A primary flaw was that the control set was over-inclusive. It included controls on sources that served to increase the total cost with little visibility benefit. As was

noted in our proposal,[78] Texas adopted this approach despite evidence in the record of identified source-specific, cost-effective controls that would have resulted in large emission reductions on certain EGUs, and despite source apportionment modeling that identified large impacts from EGU sources in northeast Texas. Our proposal explained that this approach obscured benefits that might be obtained from individual sources and only considered aggregated costs. As we also explained, the submitted analysis failed to study or consider scrubber upgrade candidates. It was accordingly under-inclusive of large, highly cost-effective emissions reductions that would lead to significant improvements in visibility. These points are validated by the technical record for this FIP.

Therefore, whether the state's analysis is labelled a source category analysis, an analysis of multiple individual sources, or some hybrid, we conclude that it contained serious deficiencies that would materially affect the outcome of the state's SIP process. As a result, we conclude this component of the SIP requires disapproval.

Finally, it bears noting that the approach we have taken in our FIP to identifying appropriate controls does not dictate the approach that Texas or any other state must take to assess controls. Given Texas' size and the range of distances from point sources to Class I areas, the mix of controls at EGUs and other large point sources in the state, and the overall significance of the impacts from these point sources, we considered it appropriate to undertake a source specific analysis to avoid the potential for over-controlling sources.[79] In some circumstances, depending on the types of sources at issue, the impacts from these sources relative to other causes of visibility impairment, the types of controls under consideration, and other such factors, a source category approach can be appropriate. Ultimately, however, while there is flexibility in available analytical approaches, states cannot adopt an approach to reasonable progress, which by its nature overlooks cost-effective controls that would otherwise be viewed as being beneficial.

Comment: Because of guidance and precedent that ''source category'' analyses can be appropriate, individual sources or point sources cannot be subject to source-specific controls to meet reasonable progress. Individual sources can be subject to control for purposes of addressing BART or RAVI requirements but additional, source-specific controls may not lawfully be imposed.

Response: We disagree with the argument that, because a source category analysis may be appropriate in some circumstances, sources cannot be subject to source-specific controls to ensure reasonable progress toward improving visibility. It is unclear how a state would develop a SIP containing ''emission limits, schedules of compliance, and other measures may be necessary to make reasonable progress,'' as required by CAA section 169(A)(b)(2), without the option of source-specific controls going forward. There is nothing in the visibility provisions of the CAA or the Regional Haze Rule suggesting otherwise.

Comment: Information on FGD scrubber upgrades cannot be used to disapprove the SIP because that information was acquired through EPA's authority to obtain information under CAA section 114, but the state has no equivalent corresponding authority. EPA comment letters and communications in past years had not informed the state of the importance of analyzing scrubber upgrades.

Response: Neither of these observations would justify our approving a flawed component of a SIP revision—in this case an analysis within that SIP revision—that, among other things, had unreasonably overlooked the option of FGD upgrades. Our 2005 BART rule discussed the state evaluation of scrubber upgrades in several places.[80] The technical information in our proposal validates FGD upgrades as an option that should have been considered, and we consider this technical record to have been reinforced and further validated with additional information and comments provided in support of the proposal. Even as we acknowledge that the TCEQ does not have authority (or any present delegation of authority) to request information under CAA section 114, this is not any kind of determinative limitation on the state's technical and regulatory capacities and tools for producing and developing information on an air pollution control measure such as FGD upgrades. Texas has engaged in air quality control planning and air pollution prevention under the CAA for decades, and the Texas agency or agencies responsible for SIP adoption and implementation are required to possess the necessary legal authority under state law to adopt and implement all SIP measures.[81] Consequently, in this case, the TCEQ bore the responsibility of developing or requesting information needed to properly assess scrubber upgrades. Lastly, as we state above, any past EPA comment letters would be intended to be helpful to the improvement of any SIP revision that is under development, but they do not constitute agency action on that SIP revision or constitute any assurance of positive action on that revision upon submission and review. Instead and as always, EPA has to formally discharge its responsibilities to review any SIP submittal under the provisions of CAA section 110(k). Accordingly, the issue of TCEQ's knowledge, notice, or lack thereof on FGD scrubber upgrades cannot be resolved in any way that would shield the SIP revision from this basis for disapproval.

G. Constitutional Law

One commenter cited to the Commerce Clause, Fifth Amendment and Constitutional non-delegation principles in support of its contention that EPA should not be able to regulate sources under our regional haze program. We disagree with these comments. First, under the Commerce Clause, the commenter argues that we cannot regulate regional haze on the theory that regulated conduct—such as ''carbon emissions'' from coal-fired power plants—will have some effect on interstate commerce. We disagree with the comment because owners and operators of the Texas sources subject to this regional haze FIP are engaged in economic activities (the operation of coal-fired power plants) that cause haze-forming air pollution to travel into other states and substantially affect interstate commerce. Each of the Federal Class I areas receives substantial numbers of visitors, including those from out-of-state, each year. Our regulation of these sources of visibility impairing pollution pursuant to the CAA is squarely within the Federal government's Commerce Clause authority. Our regulation of emissions from coal-fired power plants, which cause and contribute to regional haze in multiple states, to fill a gap left by disapproval of a SIP seeks to fulfill

[78] 79 FR 74838 (''[W]e believe that individual benefits were masked by the inclusion of those controls with little visibility benefit that only served to increase the total cost figures.'')

[79] On this point, it also bears noting that Texas' EGUs operate within a state that is at least three times larger than 38 of the states and a full 60% larger than California, the next largest of the contiguous states.

[80] See for instance 70 FR 39171: ''You should evaluate scrubber upgrade options based on the 5 step BART analysis process.''

[81] CAA section 110(a)(2)(E); 42 U.S.C. 7410(a)(2)(E) (requiring assurances of ''. . . adequate, personnel, funding, and authority under State . . . law to carry out'' SIP requirements); Section 2.1(c) of appendix V to 40 CFR part 51.

the regional haze provisions of the CAA, which in turn are constitutional exercises of Congress's power under the Commerce Clause of the U.S. Constitution.

Second, the commenter contends that our Regional Haze Rule suffers from a non-delegation problem. We disagree. The CAA's visibility provisions provide extensive intelligible principles that guide our exercise of discretion. CAA section 169A, as well as other provisions, required us to promulgate regulations directing the states to revise their SIPs to include emission limits and other measures as necessary to make ''reasonable progress.'' [82] Congress defined reasonable progress to be the consideration of four statutory factors, including cost and energy impacts.[83] Congress also directed our regulations to require BART for a specific universe of older sources, and again provided a set of statutory factors states must consider when determining what control technology constitutes BART.[84] These two sets of statutory factors, among several other provisions and definitions in CAA section 169A that provide specific instructions to EPA and states, clearly constitute intelligible principles under the framework set forth in the case cited by the commenter. The Regional Haze Rule, which we promulgated pursuant to the statutory mandate in CAA section 169A, reflects these same intelligible principles and has been upheld by the D.C. Circuit Court.

Third, a commenter claims that the EPA has commandeered the states in violation of the Fifth Amendment of the Constitution. We disagree with this comment. The U.S. Supreme Court has held that, ''the Federal Government may not compel the states to implement Federal regulatory programs.'' [85] The CAA in no way compels a state to implement Federal regulatory programs. The CAA, instead, authorizes the EPA to promulgate and administer a FIP if a state fails to submit an adequate SIP.[86] The EPA will implement the FIP, with no actions required by any part of the government of Texas.

H. Stay of Effective Date, Consolidated Appropriations Act, and Executive Orders 13405 and 13211

Comment: Any final action should stay the effectiveness and effective date of the action or establish a delayed effective date to allow for ''judicial vetting'' of EPA's determinations.

Response: We have reviewed these requests and do not agree that taking these measures with our final rule would be appropriate. Our final rule initiates the effectiveness of the action to ensure the requirements of the CAA are carried into effect. This result is consistent with the CAA and with the regulatory rulemaking process more generally. We note that CAA section 307(d)(7)(B) allows, in limited fashion, for a stay of effectiveness of a rule during any proceeding for reconsideration, but this authority presupposes the rule's finalization, the rule's effectiveness, and the filing of an administrative petition for reconsideration. Making the rule effective also ensures the finality of the action ''for purposes of judicial review.'' *See* CAA section 307(b). Nothing in our response here limits or inhibits the filing of a petition for judicial review or the powers of a reviewing court.

Comment: EPA should update both its atmospheric modeling platforms as part of the upcoming Appendix W rewrite and the cost manual in order to support reasonable future assessments of visibility impacts and appropriate control strategies consistent with the Committee Report associated with the Consolidated Appropriations Act of 2014.

Response: As a general matter, wherever possible, we intend to follow the committee report instructions associated with the Consolidated Appropriations Act of 2014, even where not specifically incorporated by reference into the CAA itself. We are currently working to update our ''Guideline on Air Quality Models'' in appendix W to part 51 of title 40, Code of Federal Regulations, and we proposed updates on July 29, 2015. Also, as of the date of responding to this comment, we have proposed updates to chapters within our Control Cost Manual.

Comment: One commenter stated that if we change the final rule to not include SO_2 reductions at one of the affected facilities, we must conduct an analysis under Executive Order 13045—Protection of Children from Environmental Health Risks and Safety Risks. Another commenter suggested that polluters need to reconsider a business model that burdens low income communities, especially those with minority populations, with the effects of air pollution, and urged that EPA is accountable to low income, underserved, and vulnerable communities in Texas that are constantly being ignored.

Response: As explained more fully in a later section of this document and in our RTC document, Executive Order 13045 does not apply. To the extent our final rule limits emissions of SO_2, this will also increase the level of environmental protection and beneficial effect on human health for all affected populations without having any disproportionately high and adverse human health or environmental effects on any population, including any minority or low-income population.

Comment: EPA has improperly avoided analyzing and evaluating potential energy-related impacts of the proposed rule on reliability and prices of electricity in Texas and the ERCOT region, despite Executive Order 13211 requiring such evaluation. The EPA is using a loophole in Executive Order 12866, despite meeting the cost and effect criteria and the order's purpose, to avoid evaluating the potential energy impacts of the proposed action as required by Executive Order 13211. Moreover, the proposed rule is inconsistent in claiming the rule is both of national scope and effect and not of general applicability. Additionally, CAA section 169A(g) requires that the state and the Administrator consider the energy and non-air quality environmental impacts of compliance when determining BART. Finally, citing ERCOT's recent report, the proposed FIP affects a significant portion of Texas' base load power generation fleet and the potential for adverse effects from the EPA's proposed rule is actually increased, not lessened, because the costs and impacts of the rule are focused within a smaller region. Therefore, regardless of Executive Order 13211 applicability, EPA should evaluate and consider the impacts of the proposed FIP on the reliability and price of electricity in Texas.

Response: As explained more fully in a later section of this document and our RTC document, Executive Order 13211 does not apply as this action is not a rule of general applicability under Executive Order 12866. Our determination regarding this is not inconsistent with our determination that the rule is of national scope and effect, as these are different determinations that we fully evaluated under their respective standards, and are not directly comparable. Additionally, we did consider the commenter's concerns regarding grid reliability and price of electricity, as discussed more fully in the Grid Reliability section of this document, so we did not ''utilize a loophole'' in the applicability provisions of Executive Order 12866 to

[82] 42 U.S.C. 7491(b)(2).

[83] *Id.* at 7491(g)(1).

[84] *Id.* at 7491(b)(2)(A) & (g)(2).

[85] *Printz* v. *United States,* 521 U.S. 898, 925 (1997).

[86] 42 U.S.C. 7410(c)(1)(A).

avoid consideration of the concerns raised in this comment.

I. Controls in Addition to CAIR/CSAPR, and CSAPR Better Than BART

Comment: Texas is the only state included in CSAPR for which EPA is issuing a FIP for reasonable progress. EPA proposed to issue a FIP that would replace Texas' reliance on CAIR to satisfy the BART requirement for EGUs with reliance on CSAPR. But EPA's proposal otherwise disregarded CSAPR's more stringent SO_2 and NO_X emission budgets for Texas, as compared to CAIR, as well as the additional trading restrictions imposed by CSAPR. For all other states that have relied on either CAIR or CSAPR, EPA found such participation to satisfy the states' reasonable progress obligation for the first planning period for those sources. EPA should not require controls beyond BART for BART sources because it is reasonable to conclude that no additional emissions controls are necessary for BART sources in the first planning period.

Response: As discussed elsewhere in this document, although we proposed to rely on CSAPR to address the BART requirements for EGUs in Texas, we are not finalizing that proposed action. On July 28, 2015, the D.C. Circuit Court issued its decision in *EME Homer City*[87] upholding CSAPR but remanding without vacating a number of the Rule's state emissions budgets, including Texas' budgets. We are currently in the process of determining the appropriate response to the remand, and the extent to which the SO_2 and NO_X CSAPR budgets for Texas will change is currently unknown. The uncertainties regarding the CSAPR SO_2 budgets are particularly relevant given our rule's focus on this pollutant.[88] Even assuming, however, that *EME Homer City* had not invalidated the CSAPR NO_X and SO_2 budgets for Texas and that we were taking final action to address the BART requirements through reliance on CSAPR, we do not agree that we are prohibited from requiring controls beyond CSAPR for purposes of reasonable progress. We noted in 2005 that the determination that CAIR provided for greater reasonable progress than BART did not answer the question of whether more than CAIR would be required in a regional haze SIP.[89]

Furthermore, such a simplistic comparison ignores the meaningful differences between Texas and the other states cited by commenters in which no controls on NO_X and SO_2 from EGUs beyond CSAPR were required. As explained in our proposed rulemaking, allowing Texas to rely on CSAPR to meet its reasonable progress obligations is not appropriate, considering the large impact of Texas sources on visibility at Big Bend, the Guadalupe Mountains, and the Wichita Mountains and the availability of cost-effective controls even after considering CAIR/CSAPR's previously projected reductions.

Comment: EPA should disapprove Texas' determination to exclude all BART-eligible sources from being subject to BART and EPA should do source by source BART for NO_X. Further, if EPA does not finalize the proposed controls for reasonable progress, then EPA should do source by source BART for SO_2. EPA's proposal to rely on CSAPR as an alternative to BART is unlawful for three reasons. First, EPA's proposal exempts sources from BART requirements without complying with the statutory prerequisites for such an exemption. Second, even if EPA could relieve the sources of the obligation to install BART controls, the ''Better than BART'' rule upon which EPA relies is flawed. Third, the ''Better than BART rule'' is no longer valid given the substantial changes in CSAPR allocations and compliance deadlines.

Response: As discussed above, we are not finalizing our proposed action to rely on CSAPR to address BART due to the partial remand of CSAPR in *EME Homer City.* We will address the question of appropriate SO_2 and NO_X BART limits for EGUs in Texas in a future rulemaking. Comments concerning the appropriateness of CSAPR as an alternative for BART in Texas are not relevant to this action. Additionally, we are finalizing the proposed controls for reasonable progress. Therefore, the comment that we should do source-by-source BART for SO_2 if the reasonable progress controls are not finalized is moot.

J. Installation of Controls Beyond the First Planning Period

Several comments assert that our FIP authority is limited to ''filling the gaps'' in a state's SIP submission. These commenters further contend that our FIP authority is limited by the scope of the SIP submission. Because the required reasonable progress goals should be met at the conclusion of the first planning period, the commenters' argument continues, our FIP authority is likewise limited to those controls that can be implemented by 2018. We disagree. Our authority to use a FIP to address a ''gap'' or ''inadequacy'' in a SIP refers to a ''gap'' in the plan's coverage of requirements contained in the statute and regulations, and is not limited to the specific ''gap'' left by the disapproved portions of the scope of action covered in the state's SIP submission, as commenters suggest.[90]

In this action, we are determining whether Texas has addressed the regional haze requirements set forth in the CAA and our implementing regulations. Our FIP determines that under a proper assessment of reasonable progress factors, additional controls for some sources in Texas are warranted for the first planning period. Regulatory delays created by a complex Texas submission and EPA actions regarding the state's regional haze requirements, including the time needed for EPA to assess the complex 2009 submission and the thousands of comments received on our proposed action, cannot provide an exemption from the CAA requirement to address regional haze. Nor can regulatory delays make additional delays excusable when the requisite CAA analysis concludes the controls are warranted at the earliest opportunity to make reasonable progress. Additionally, there is nothing in the CAA or the regional haze rules that constrains our FIP authority to only those controls that can be installed in the first planning period. While reasonable progress goals reflect that degree of visibility improvement attainable during the first planning period (which extends to 2018), as was indicated in our proposal, the long-term strategy requirements of the program by their very nature look beyond these interim goals to the state's ''long term'' approach to addressing regional haze and may include control measures and accompanying visibility improvements that extend beyond the first planning period.[91] The commenter's concerns center upon controls that are not accounted for in the numerical reasonable progress goals, but rather as we acknowledge, are part of the long-

[87] *EME Homer City Generation* v. *EPA,* 795 F.3d 118 (D.C. Cir. 2015).

[88] ''In short, EPA's 2014 SO_2 emissions budgets for Texas, Alabama, Georgia, and South Carolina require each of those States to reduce emissions by more than the amount necessary to achieve attainment in *every* downwind State to which it is linked. The reductions on those four States are unnecessary to downwind attainment *anywhere.* Those emissions budgets are therefore invalid.'' *EME Homer City,* at 129 (*citing EME Homer,* 134 S. Ct. 1584, 1608–9 (2014)) (internal quotations omitted).

[89] 70 FR 39104, 39143.

[90] See CAA Sections 110(c) and 303(y).

[91] 79 FR 74874, citing Guidance for Setting Reasonable Progress Goals Under the Regional Haze Program, Section 5.2. By statute, the long-term strategy for making reasonable progress may extend ''ten to fifteen years.'' CAA Section 169A(b)(2)(B); 42 U.S.C. 7491(b)(2)(B).

term strategy and needed for reasonable progress.

Comments also asserted that our proposed FIP disregards the ''time necessary for compliance'' factor of the reasonable progress analysis. As we discuss in detail in the RTC document, we are required by regulation to ''*consider*'' time necessary for compliance when establishing reasonable progress goals, and we satisfied this requirement by proposing reasonable progress goals that account only for those controls that can be fully installed within the first planning period, as is consistent with our Reasonable Progress Guidance.[92] For the scrubber retrofits that may require up to five years to fully install, we exercised our authority to propose a long-term strategy including emission limits that require controls that may not be operational during the planning period and therefore are not included in the reasonable progress goals. We also note that we expect that design and construction of the scrubber retrofits will begin within the planning period, in order to meet the five-year compliance date. This approach is consistent with other FIPs issued by EPA and takes into account the time engagement required to promulgate a FIP within a planning period and the significance of the CAA's contemplated ten to fifteen year long-term strategy.

Other comments asserted that our requirement for controls outside of the planning period is inconsistent with previous FIPs. We disagree with this comment. First, we have proposed or promulgated FIPs requiring controls with compliance dates beyond the first planning period, including FIPs for Arkansas and Wyoming. The Oklahoma FIP includes requirements beyond the first planning period as the result of a stay during litigation. Further, we have applied the requirements of the regional haze program to ensure consistency in the requirements upon the sources subject to regulation. If we were to follow the commenters' arguments and fail to require application of necessary controls on Texas sources past the first planning period, those sources would be treated inconsistently with sources in other states that were required to apply the controls necessary to meet the CAA's requirement to address regional haze. We cannot agree to inconsistent application of necessary controls at Texas sources due to delays in promulgating a FIP or time-intensive installation schedules, but rather, we address these program requirements through the long-term strategy, which, as discussed above, allows for control strategies that can begin design and construction but cannot be completed within the planning period.

Several comments assert that our regulatory delays preclude EPA from imposing certain emission limitations that may not be achieved within the first planning period. Despite any delays in finalizing our action on the Texas SIP or in promulgating the FIP, we have a duty to act on the SIP and a duty to fulfill the regional haze requirements of the Act, including the authority to promulgate a FIP that imposes the controls required by the CAA where a SIP submission fails to do so. This duty and authority is not forfeited or constrained by delays, whatever their cause. We likewise disagree with commenters who consider it inappropriate for controls to be required after the planning period because corresponding visibility benefits may not be realized during the planning period. The fact that benefits of such controls may not be realized within the first planning period does not affect our determination that the controls are necessary nor deprive us of our authority to impose the requirements.

A commenter asserted that all of the controls required under the proposed FIP can be installed within the first planning period. We agree that in some cases scrubber retrofits can and have been installed in less than five years; however, we do not have the information necessary to make that determination for each specific facility included under the proposed FIP. Thus, we proposed an installation timeframe consistent with past successful BART-related scrubber retrofits that, while conservative, ensures the necessary time to install the controls.

K. Cost

We received numerous comments related to the cost analyses we performed to support the seven scrubber retrofits and the seven scrubber upgrades we proposed. These comments were received from both industry and environmental groups, and covered all aspects of our cost analyses.

Some of the comments we received from industry concerning our proposed scrubber retrofits were objections to our use of the IPM cost algorithms that were developed by Sargent and Lundy (S&L) under contract to us. As we discuss in our Cost TSD, we programmed the DSI, SDA, and wet FGD cost. algorithms, as employed in version 5.13 of our IPM model, into spreadsheets.[93] Industry stated these cost algorithms were not accurate enough to warrant their use in individual unit-by-unit cost analyses and that our use of them violated our Control Cost Manual. Others stated the IPM cost algorithms do not consider site-specific costs, or in the case of wet FGD, do not adequately consider wastewater treatment.

In summary, we disagree with these commenters and conclude that the IPM cost algorithms provide reliable, study-level, unit-specific costs for regulatory cost analysis such as required for BACT, BART, and reasonable progress.[94] We received other comments relating to our scrubber retrofit cost analyses, but none of them caused us to revise our scrubber retrofit cost-effectiveness basis. We also received a number of comments that our proposed emission limits were too stringent. We disagree with these comments and present several lines of evidence, including real-world data demonstrating that our proposed emission limits are not only achievable, but are in fact conservative in many cases.

As we discuss in our proposal,[95] our scrubber upgrade analyses were based on information we received in response to our requests under CAA section 114(c). This information was claimed as CBI under 40 CFR 2.203(b). As a consequence, we are obligated to protect the confidentiality of that information while it is subject to such claims, which precludes us from publicly posting this in our docket at regulations.gov. CBI information, while a part of our rulemaking docket, is protected from public disclosure under our CBI requirements. Although we received some public domain comments on our proposed scrubber upgrades, most were claimed as CBI. We analyzed that information, and as we discuss below in our comment response summary, we have modified certain aspects of our analyses. Like our proposed scrubber upgrade cost analyses, our revised scrubber upgrade cost analyses are similarly treated as CBI but are available

[92] See our Reasonable Progress Guidance, page 5–2: ''It may be appropriate for you to use this factor to adjust the RPG to reflect the degree of improvement in visibility achievable within the period of the first SIP if the time needed for full implementation of a control measure (or measures) will extend beyond 2018.''

[93] See discussion beginning on page 3 of our Cost TSD for more information concerning our use of the IPM cost algorithms.

[94] We believe that the IPM cost algorithms provide study level accuracy. See pdf page 17 of our Control Cost Manual: ''[a]''study'' level estimate [has] a nominal accuracy of ± 30% percent. According to Perry's Chemical Engineer's Handbook, a study estimate is '. . . used to estimate the economic feasibility of a project before expending significant funds for piloting, marketing, land surveys, and acquisition . . . [However] it can be prepared at relatively low cost with minimum data.' ''

[95] See discussion beginning on 79 FR 74876, and section 4.5 of our FIP TSD.

for review by the respective facilities. This prevents us from being able to publicly disclose the details of our analyses. Our revised scrubber upgrade analyses changed our proposed cost-effectiveness basis from where all scrubber upgrades were less than $600/ton, to where all scrubber upgrades ranged from between $368/ton to $910/ton. This is well within a range that we believe is cost-effective, given the visibility benefits that will result from the installation of those controls.

Below we present a summary of our responses to the more significant comments we received that relate to our proposed cost analyses.

Comment: We received information from Luminant and NRG claimed as CBI concerning our proposed scrubber upgrades. These companies hired S&L who alleged that we made various errors in our cost analyses and that our proposed SO_2 emission rates were too low. In related comments, Luminant stated that it hired S&L to review our scrubber upgrade cost analyses and, in so doing, it found multiple flaws. S&L states that many of our assumptions are not valid, especially those regarding the accuracy and scope of the CBI estimates we relied upon, our calculation of SO_2 baseline emissions, achievable efficiency, and our calculations of the operating costs. We also received comments from the TCEQ that we should have provided more detail about how we developed the costs for these scrubber upgrades. Earthjustice [96] submitted information concerning previous scrubber upgrades that supports the reasonableness of our assumed control level of 95%.

Response: As explained above, because Luminant and NRG claimed the above information as CBI, we were required to separate out such CBI and respond to it in a separate CBI protected document (organized by claimants). Although this information is a part of our record to this action, we cannot post it to our electronically posted public docket at *www.regulations.gov.* We disagree with the TCEQ that we should have provided more information concerning the cost of the scrubber upgrades we analyzed. Our scrubber upgrade cost information was based on information supplied under CBI claims by the affected facilities in response to requests for information under CAA section 114(a). Accordingly, although this information is still in our docket, and is being used to support our decision making, it cannot be included in our publicly posted docket at *www.regulations.gov* and can only be disclosed by us to the extent permitted by CAA section 114(c) and our regulations governing treatment of CBI as set out at 40 CFR part 2, subpart B.

We generally disagree that our analysis was flawed. We specifically used information provided by Luminant's and NRG's own independent contractors (*e.g.* S&L) whom they hired to assist in providing information responsive to our CAA section 114 requests. We have reviewed the scrubber upgrade cost analyses performed by S&L that were provided with separate comments from NRG and Luminant and adopted S&L's methodology, which mainly concerned operational costs. However, we noted many errors and undocumented cost figures in S&L's analyses. We corrected these errors and rejected some of S&L's undocumented assertions and/or costs. Nevertheless, in order to produce a conservative scrubber upgrade cost analysis and set many of the issues that Luminant raises aside, we incorporated many of Luminant's cost items. The resulting costs for Luminant's scrubber upgrades increased slightly, resulting in a range of $368/ton to $910/ton for all of the scrubber upgrades, but remained well within a range that we believe is cost-effective, given the visibility benefits that will result from the installation of those controls.

Comment: San Miguel stated that it should not be included in our FIP, but if it was included, its SO_2 emission limit should be increased and its emission averaging period should be changed from a monthly basis to an annual basis.

Response: We have reanalyzed the monthly emission data for San Miguel, including calculating the 30 BOD average for it since it completed its scrubber upgrades. We reaffirm our proposed conclusion that based on the coal that San Miguel has historically burned over the last several years, and its demonstrated ability to remove 94% of the sulfur from that coal, that it should be able to meet our proposed emission limit of 0.60 lbs/MMBtu based on a 30 BOD average. We also believe additional spare capacity exists in San Miguel's scrubber system. However, similar to what we discussed in our proposal,[97] and in section I.B.3.b, of this action, we offer San Miguel the opportunity to install a Continuous Emissions Monitoring System (CEMS) at its scrubber inlet and demonstrate that it maintain at least 94% control based on a 30 BOD average. Our RTC document has more details on these options.

Comment: The TCEQ summarized its approach to analyzing controls for reasonable progress and stated that its approach was adequate. In particular, the TCEQ defended its use of a $2,700/ton threshold for control, which it stated was used in CAIR, and its decision that the cost of the controls was not worth the improvement in visibility.

Response: As we note in our proposal,[98] we disagree with the TCEQ that its approach to reasonable progress was adequate. We note that to the extent that TCEQ's cost threshold was reasonable, our estimate of the costs of the controls required by our FIP fall below the $2,700/ton threshold used by Texas, with one exception. For the one source with estimated costs exceeding $2,700/ton, the costs of controls is less than the $2,700 threshold selected by Texas, after adjusting for the escalation of costs over time.[99] The TCEQ's potential control set consisted of a mix of large and small sources, located at various distances from Class I areas, with a large geographical distribution. Some controls would likely result in significant visibility benefits, but some would result in little to almost no visibility benefits. Because it only estimated the visibility benefit of all the controls together and weighed those benefits against the total cost of controlling the mix of sources under consideration, the TCEQ was not able to assess the benefit of controlling individual sources or the subset of sources with significant, and potentially cost-effective, visibility benefits. Larger individual benefits were obscured by the inclusion of those controls with little visibility benefit that only served to increase the total cost figures. As a result, despite its own conclusions that controls below $2,700/ton were available for a number of sources,[100] and CENRAP's modeling results that Texas point sources impact the visibility at the Wichita Mountains several times more than the impacts from Oklahoma's own point sources, Texas ultimately decided to not control these sources.

[96] When we refer to Earthjustice, we also mean the National Parks Conservation Association and the Sierra Club as these groups collectively submitted comments. These groups also contracted with independent technical experts including Ms. Victoria Stamper, Dr. H. Andrew Gray, and Dr. George D. Thurston.

[97] See discussion beginning on 79 FR 74885.

[98] 79 FR 74838.

[99] Conservatively escalating the $2,700/ton value from when it was first developed for the CAIR rule, which was finalized on March 10, 2005, to the time of our analysis, which was conducted in 2014, results in a value of $3,322/ton (*i.e.,* the Chemical Engineering Plant Cost Index for 2005 = 468.2, and that for 2014 = 576.1; $2,700 × 576.1/468.2 = $3,322).

[100] See Appendix 10–1 of the Texas Regional Haze SIP. For example, the costs of scrubbers for Big Brown (Acct No F10020W) Units 1 and 2 were determined to be $1,573 and $1,540, respectively.

Furthermore, Texas' analysis did not include consideration of scrubber upgrades on key sources with large visibility impacts and potentially very cost-effective controls. Texas' flawed analysis prevented it from properly considering whether reasonable controls were available on the subset of sources or group of sources with the largest visibility impacts. Although our Regional Haze Rule and our Reasonable Progress Guidance provide states with latitude in approaching reasonable progress, states must still meet the requirements of the CAA and Federal requirements. We conclude that Texas' approach was flawed and this fundamental critical flaw in Texas' analyses cannot be approved.

Comment: Earthjustice agreed with our conclusion that Texas' approach to reasonable progress obscured potentially cost-effective controls. Earthjustice also generally supported our reasonable progress/long-term strategy analysis, concluded that in comparison with other actions our costs were conservative (high) but reasonable, but stated that additional units should have been proposed for control. Earthjustice criticized our emission baseline methodology of eliminating the high and low values from the 2009–2013 emission data and averaging the resulting three years of data. It reanalyzed our scrubber retrofit cost-effectiveness calculations for Big Brown, Monticello, Coleto Creek, Welsh Units, W. A. Parish, and Tolk Units 1 and 2, using a straight 5-year average of the 2009–2013 emissions, and concluded our costs were too high. Earthjustice generally stated our assumed DSI SO_2 removal efficiency was too high. Earthjustice believed we should have considered coal blending with low sulfur coal and lignite drying. Earthjustice also provided an analysis for Novel Integrated Desulfurization (NID). Earthjustice concluded that our calculated cost-effectiveness values were too high, and that NID was also a viable alternative to SDA and wet FGD and offered some advantages.

Response: We confirm that one of our intentions in performing our cost analyses was to conservatively estimate many of the individual cost parameters (tending toward a higher cost estimate) and demonstrate that even doing this, our proposed scrubber upgrade and scrubber retrofit cost analyses were cost-effective. We believe we have met that goal. We disagree with Earthjustice that we should have proposed additional units for control and respond to this comment in the Modeling section of this document and the RTC document. We continue to believe our five-year emission baseline methodology, with the elimination of the highest and lowest emission years, is appropriate. The BART Guidelines, which we drew upon for some of our reasonable progress/long-term strategy analyses, state that the emission baseline, ''should represent a realistic depiction of anticipated annual emissions for the source. In general, for the existing sources subject to BART, you will estimate the anticipated annual emissions based upon actual emissions from a baseline period.''[101] We eliminated the high low values from the 2009–2013 emission to better address issues such as variations in coal sulfur content, capacity usage, operations, etc., and make the baseline more representative of typical, recent plant operations. The difference between our baseline calculations and a straight 2009–2013 average is small and would not change our conclusion that the scrubber upgrades we proposed are very cost-effective. We also believe our DSI analysis strategy was appropriate. We analyzed DSI at both a 50% control level that is likely achievable for all the units, and the highest level of control the units were potentially capable of achieving, with design factors and costs adjusted accordingly, thus bracketing the problem.

We do not believe there is enough information concerning NID installations at this time to warrant an intensive analysis of that technology. Given the vendor advertised control efficiency of NID, the selection of NID technology rather than wet FGD would not change our proposed SO_2 limits. With the exception of Tolk, the non-air quality environmental impacts of a NID and wet FGD are similar and do not warrant eliminating either technology. We proposed that the units in question meet certain SO_2 emission limits, but we did not mandate a specific control technology in doing so. Consequently, any unit, including the ones discussed herein, may elect to use a NID to achieve our required SO_2 emission limits.

With respect to the comment that we should have considered blending the coal used at the units with low sulfur coal, we note that most of the units in question either burn lower sulfur Powder River Basin (PRB) coal or they blend it with lignite. We do not believe we have the necessary technical information (*e.g.,* fuel sulfur content, availability, cost, contractual information, etc.) to properly consider fuel blending or fuel switching. Nevertheless, the emission reductions achieved by switching to cleaner coal are much less than the emission reductions anticipated due to the implementation of the required controls. We agree that in some circumstances coal drying can be a viable technology for improving boiler efficiency and, in the process, reduce emissions because less coal is burned to achieve the same heat input to the boiler. However, we are not required to consider every potential technology under the reasonable progress and long-term strategy provisions of the Regional Haze Rule, which applies to the analysis in question. We considered both SDA and wet FGD, and the next most promising SO_2 removal control, DSI. Were we to have considered coal drying, it would have ranked below DSI in its ability to remove SO_2.

Comment: Luminant provided general objections to our cost analyses and stated our analysis relies entirely on a cost-per-ton metric but ignores what it considers the more meaningful cost-per-deciview metric.

Response: Luminant's general cost comments are addressed with specificity in the cost section of our RTC document. We reject Luminant's contention that we should have used the $/dv metric, a contention we also rejected and addressed in our Oklahoma FIP.[102] We note that to use the $/dv metric as the main determining factor would most likely require the development of thresholds of acceptable costs per deciview of improvement for both single and multiple Class I analyses. In *Oklahoma* v. *EPA,* the Tenth Circuit Court recognized our authority to use a different metric when promulgating a FIP.[103]

Comment: S&L cited to capital costs at Monticello 3 and Sandow 4, including spray headers and mist eliminators, that we mistakenly removed from our scrubber upgrade cost analyses.

Response: S&L is correct that we did in fact remove these capital costs from our scrubber upgrade cost analyses because we noted these costs were included in a 2013 Use Determination Application to the TCEQ, which identified that new replacement tower spray nozzles and mist eliminators had been installed. We wrongly assumed

[101] 70 FR 39167.

[102] Response to Technical Comments for Sections E. through H. of the **Federal Register** Notice for the Oklahoma Regional Haze and Visibility Transport Federal Implementation Plan, Docket No. EPA–R06–OAR–2010–0190, 12/13/2011, pdf 116.

[103] ''When promulgating its own implementation plan, [EPA] did not need to use the same metric as Oklahoma. The guidelines merely permit the BART-determining authority to use dollar per deciview as an optional method of evaluating cost effectiveness.'' *Oklahoma* v. *EPA,* 723 F.3d 1201, 1221 (10th Cir. 2013).

that after having identified that its scrubber system could be upgraded cost-effectively, and having performed some of those modifications, Luminant had installed new upgraded spray headers and nozzles rather than replacing its worn out spray header and nozzles with the less efficient original design. However, based on the comment received on this, we added these costs back into our updated scrubber upgrade cost analyses and the result was a very minor increase in the cost-effectiveness value (higher $/ton). This did not affect our conclusion that upgrading the scrubbers for these units is very cost-effective.

Comment: S&L states that in escalating costs, we should have assumed its 2006 reports were in 2005 dollars and we should have escalated our costs out to 2015. S&L also objected to our use of a 10% increase to our escalation to account for escalation outside of the customary five-year window, our deletion of Allowance for Funds During Construction (AFUDC), and our deletion of owner's costs. S&L, GLCC, and CCP allege our use of a 30-year life for our scrubber retrofit and scrubber upgrades analyses is inconsistent with our Control Cost Manual. Earthjustice supported our 30-year assumed life.

Response: We agree with S&L that we should have assumed its 2006 reports were in 2005 dollars, and we have made the appropriate correction to our escalation calculations. We disagree that we should have carried our escalation costs forward to 2015, because we used the most recent emission data that was available, for both the cost analyses and modeling, which was 2013 data. As we explain in more detail in the Cost section of the RTC document, based on consideration of the CEPCI cost indices over the 2005–2013 period, we conclude that our approach of adding an additional 10% to our escalated cost is reasonable and likely conservative. As we have noted in a number of previous actions, AFUDC and owner's costs are not allowable under the Control Cost Manual overnight approach.[104] We refer S&L to our response to the scrubber life issue in our Oklahoma FIP in which we supported a 30-year life.[105] Because none of the facilities involved have entered into (or offered to enter into) enforceable commitments to shut down the applicable units earlier, we have continued to use a 30-year equipment life for scrubber upgrades, as we believe that is proper.

Comment: Xcel notes that in performing our dry scrubber cost analysis for Tolk, we failed to consider that there is a general water scarcity in the area with no surface water availability, and that to obtain the additional amount of water necessary to support the operation of dry scrubbers, Xcel would have to attempt to purchase water rights from existing farmers along with a gathering system or look at other costly alternatives. Based on the historical cost of water rights in the area, this is an additional capital cost of approximately $40 million that was not included in EPA's cost estimates. Earthjustice encouraged us to investigate Xcel's water rights, and estimated the cost to purchase additional water rights based on assumptions we used to assess this issue for the Gerald Gentleman facility in Nebraska.

Response: We have conducted an extensive investigation of the issue raised in Xcel's comments, including additional communication with Xcel and the High Plains Water District, in order to clarify some of Xcel's assertions.[106] We conclude that Xcel's asserted water requirements for dry scrubbing are much higher than other similar dry scrubbing installations, and the basis for the disparity is unsupported. As confirmed by our communications with the High Plains Water District and Xcel, we also conclude that Xcel has multiple lines of access to adequate supplies of water sufficient to supply the proposed dry scrubbers (SDA) without the need to buy additional water rights. First, we calculate that water already available at Tolk is almost enough to satisfy the additional water demand of our proposed dry scrubbers. Second, we note that Xcel receives blowdown water from nearby Plant X[107] and that Xcel offered testimony to the Public Utility Commission of Texas that two units in Plant X will retire in 2019 and 2020, which will free up additional water that could be used to satisfy the additional water demand of our proposed dry scrubbers. Third, we believe that Xcel has access to additional unexploited water rights that are more than adequate to supply our proposed dry scrubbers. Lastly, we acknowledge that Tolk's ultimate sources of water, the Ogallala Aquifer, continues to be depleted. However, considering the water needed by our proposed dry scrubbers is by Xcel's own account only approximately 9 to 12% of the total plant's needs, the aquifer's depletion will be a limiting factor on the operation of the plant itself, not on the operation of the scrubbers.

Comment: Xcel alleged that in our cost analysis we failed to consider that our proposed dry scrubbers would (1) end Tolk's sales of its fly ash or require the installation of additional baghouse capacity, and (2) require additional landfill capacity. Xcel also alleged that we did not adequately consider DSI and non-air environmental impacts, and that our assumption of a 30-year operating life is wrong.

Response: We disagree with these comments. Our cost analysis did include an additional baghouse that could be installed upstream of the dry scrubber which can preserve Tolk's existing fly ash sales. Also, our cost analysis included landfill costs, which based on Xcel's own information, are adequate to cover the additional disposal costs. We also believe our DSI cost methodology, in which we bounded the range of expected DSI performance, was adequate and demonstrated that DSI was not cost-effective when compared to the dry scrubber we costed for Tolk. Lastly, as we discuss in our responses to other comments, we believe our assumption of a 30-year life is proper, and we note that in testimony to the Public Utility Commission of Texas (PUCT), Tolk assumed similar equipment lives.

Comment: S&L states we overestimated SO_2 reductions (and thus our cost-effectiveness calculation was too low) for scrubber upgrades due to our SO_2 baseline methodology in which we eliminated the high and low annual average values from 2009–2013 and averaged the remaining three yearly values. Earthjustice stated we overestimated our cost-effectiveness calculations for our scrubber retrofits in part due to our SO_2 baseline methodology. Earthjustice stated it would have been more appropriate to use a five-year annual average emissions baseline, five-year annual average SO_2 rate in lb/MMBtu, and five-year average gross heat rate and MW-hrs generated, based on data from 2009 to 2013.

Response: We disagree with the commenters. As we note in our proposal, we used the BART Guidelines for some aspects of our analysis and believe our methodology is in agreement

[104] See for instance our ''Response to Technical Comments for Sections E. through H. of the **Federal Register** Notice for the Oklahoma RH and Visibility Transport Federal Implementation Plan,'' Docket No. EPA–R06–OAR–2010–0190, 12/13/2011.

[105] Response to Technical Comments for Sections E. through H. of the **Federal Register** Notice for the Oklahoma RH and Visibility Transport Federal Implementation Plan, Docket No. EPA–R06–OAR–2010–0190, 12/13/2011. See discussion beginning on page 36.

[106] Please see our docket for inclusion of this communication, which are in the form of emails transmitting letters and other information.

[107] ''Plant X'' is the actual name of a nearby EGU also owned by Xcel.

with the relevant language in that regard.[108] We calculated our baseline SO_2 emissions by first acquiring the 2009 to 2013 emissions as reported to us by the facilities in question. This is reflective of the actual emissions from the underperforming scrubber systems installed at the units in question. We then calculated the uncontrolled SO_2 emissions by acquiring U.S. Energy Information Agency coal usage data. We used these two figures to calculate the level of control for each year. In so doing, we eliminated the highest and lowest annual emission values from 2009–2013 to better address the issues S&L raises in its other comments (variations in coal sulfur content, capacity usage, operations, etc.) and to make the baseline more representative of typical, recent plant operations. The difference between our baseline calculations and a straight 2009–2013 average is small and does not change our proposed conclusion that the scrubber upgrades we proposed are very cost-effective.

Comment: S&L stated that our assumption that wet FGD retrofits can achieve 98% reduction or a controlled SO_2 emission rate of 0.04 lb/MMBtu is unrealistic and cannot be sustained on a continuous, long-term basis. Earthjustice stated that our assumed scrubber retrofit emission rates were not stringent enough.

Response: We disagree with S&L. First, we note that vendors routinely guarantee SO_2 emission limits at least as stringent as, or more stringent than, what we have proposed. We have also conducted extensive analysis of a number of SO_2 scrubber retrofits in which we have plotted their 30 BOD SO_2 emission limits.[109] Of the units we analyzed, 13 retrofit units have guaranteed control efficiencies of 95% to 99%, with eight of them guaranteed at 98% to 99%. With one exception, these eight units are achieving 98% to 99% SO_2 control, when calculated using a very conservative method we have adopted. We also demonstrate that units similar to the ones in question are able to continuously sustain SO_2 limits lower than what we have proposed for at least one year, and in some cases much longer. For instance, three of the units have achieved a maximum 30-day BOD equal to or less than our proposed SO_2 emission limit for scrubber retrofits of 0.04 lb/MMBtu:

- Scherer Unit 2: 0.01 lb/MMBtu based on 485 data points [110]
- Iatan Unit 1: 0.02 lb/MMBtu based on 2,004 data points
- Boswell Energy Center: 0.03 lb/MMBtu based on 1,881 data points

Our technical conclusions are also consistent with past judicial findings regarding achievable removal efficiencies and control rates, including conclusions in the already five years past case of United States v. Cinergy Corp., 618 F. Supp. 2d 942, 947 and 961–962 (S.D. Ind. 2009).[111] Thus, we disagree with S&L that our proposed scrubber retrofit SO_2 emission limits are not realistic or maintainable on a long-term basis. We agree with Earthjustice that it may be possible that many of the scrubber retrofit units can achieve greater control efficiencies than we proposed. Greater control efficiencies would result in a more favorable cost-effectiveness (lower $/ton) and more visibility improvement. This is another area in which we strove to be conservative in our analyses in order to demonstrate that even with many conservative cost assumptions the scrubber retrofits we proposed are cost-effective.

Comment: S&L stated that our use of the IPM cost algorithms was not in keeping with our Control Cost Manual and because of the limited number of site-specific inputs, the IPM cost algorithms provide order-of-magnitude control system cost estimates, but do not provide case-by-case project-specific cost estimates meeting the requirements of the BART Guidelines, nor do the IPM equations incorporate the cost estimating methodology described in the Control Cost Manual.

Response: We disagree with S&L. As we stated in our Cost TSD, we relied on the methods and principles contained within the Control Cost Manual, namely the use of the overnight costing method. In fact, the Control Cost Manual does not include any method for estimating the costs of any of the SO_2 control methods evaluated in this action. We note our strategy of relying on a publicly available control cost tool is similar to the strategy the states themselves employed in the development of their own SIPs. For instance, as explained in the Texas SIP, the TCEQ used the control strategy analysis completed by the CENRAP, which depended on the EPA AirControlNET tool [112] to develop cost per ton estimates. We have used IPM cost models to estimate BART costs in other similar rulemakings including our Arizona regional haze FIPs,[113] the Wyoming regional haze FIP,[114] and to supplement our analysis in the Oklahoma FIP.[115] S&L used real world cost data to construct its cost algorithms and confirm their validity. These cost models have been updated and maintained since their introduction in 2010 and have been continuously used by us since that time. These control costs are based on databases of actual control project costs and account for project specifics such as unit size, coal type, gross heat rate, and retrofit factor, and they require unit specific inputs such as reagent cost, waste disposal cost, auxiliary power cost, labor cost, gross load, and emission information. We believe that the IPM cost models provide reliable study-level, unit-specific costs for regulatory cost analysis such as required for BACT, BART, and reasonable progress. Lastly, we are confident in the basic methodology behind the S&L cost algorithms such that in our recent proposal for updating the SCR chapter of the Control Cost Manual,[116] we presented an example costing methodology that is based on the IPM S&L SCR algorithms, which were developed using a similar methodology to the wet FGD, SDA, and DSI cost algorithms discussed herein.

Comment: S&L stated that the IPM cost algorithms do not adequately consider site specific information and it cites to a number of possibilities including demolition and relocation of equipment, modifications that may be required to the existing ash handling systems, replacement of the existing induced draft fans or booster fan modifications, modifications/upgrades to the existing auxiliary power system, and labor productivity. S&L criticized our use of a retrofit factor of 1.0 for all units, and stated that the inlet temperature of Big Brown and Monticello units was 360–370 F, which

[108] 70 FR 39167. ''The baseline emissions rate should represent a realistic depiction of anticipated annual emissions for the source.'' See also 79 FR 74874.

[109] See our RTC document for much more detail on our analysis, and the file, ''Selected scrubber retrofit efficiencies.xlsx,'' which is in our docket and contains the plots discussed. The performance of each scrubber in our data set is summarized in the file, ''Selected scrubber retrofit efficiencies.xlsx.''

[110] Where ''data point'' represents a valid daily SO_2 monitored value.

[111] While the underlying expert report submitted by the Department of Justice in that case is protected from release under Court order, the testimony of the government expert witness that substantially accords with it, as well as our conclusions in responding to this comment, has been added to our docket.

[112] Our AirControlNET tool is out of date and no longer supported.

[113] 77 FR 42852 (July 20, 2012).

[114] Memorandum from Jim Staudt to Doug Grano, EPA, ''Review of Estimated Compliance Costs for Wyoming Electricity Generating Units (EGUs)—revision of previous memo'', February 7, 2013, EPA–R08–OAR–2012–0026–0086.

[115] 76 FR 81728 (December 28, 2011).

[116] 80 FR 33515.

is above the 300 F assumed value in the IPM algorithms, and would result in a flue gas volume increase of 10%, requiring additional costs.

Response: We note that the IPM cost algorithms, which are derived from real world costs, already have retrofit issues built into them. Our assumption of a retrofit factor of 1.0, which represents an average retrofit difficulty, likely overestimates the costs of some facilities (*e.g.,* Tolk) that have no retrofit issues. We solicited comments on all aspects of our scrubber retrofit cost analyses, but received little of the site-specific information to which S&L cites. Also, S&L provides no documentation for those it does cite. Regardless, these types of issues result in small increases in costs that are well within the required +/−30% accuracy [117] and do not affect cost-effectiveness conclusions due to the conservative nature of our estimates, as demonstrated elsewhere in these responses.

S&L does not provide any documentation to support its contention that the IPM wet FGD cost algorithms are based on a generic scrubber inlet temperature of 300 F. We have researched all available references on this issue and cannot find anything to support this conclusion. Rather, we conclude that the IPM cost algorithms estimate costs from regression equations based on actual completed projects. There are a number of factors other than temperature that affect the volume of gas flow that passes through a scrubber system. These include the amount of in-leakage in the system (which often increases due to inefficient or worn seals in the air preheater) and the type and characteristics of the coal that is being burned. This is made clear by examination of two of the scrubber retrofit reports for Big Brown (one of the units S&L cites), which were issued by S&L in 2004 and 2007, we received in response to our CAA Section 114 requests.[118] The 2004 report indicated that the design flue gas flow rate at the scrubber inlet was approximately 19.7% less than that in the 2007 report. However, both reports indicated that the reference temperature at the inlet was 370 °F—the same temperature S&L references in its comment—and both were at the same pressure. It is clear there are many variables that impact flow beyond temperature. We therefore conclude that S&L has not documented its temperature assertion, available information does not support it, and its temperature inference is too simple to properly characterize the situation. In any case, even assuming a 10% increase in gas flow rate, would not result in a significant enough increase in cost to impact our decision regarding these facilities.

Comment: S&L states the IPM cost module includes costs only for minor physical and chemical wastewater treatment. However, wastewater treatment standards proposed by EPA, and anticipated to be published as a final rule in 2015, will likely require significantly more advanced treatment of FGD wastewaters. S&L states this could add $30–$40 million to the cost of a retrofit wet FGD control system and we should have included these costs in our estimates.

Response: Because our wastewater treatment rules have not been finalized, and therefore we do not know with certainty whether any additional costs may be incurred, it is not appropriate for us to include those costs in our cost-effectiveness calculations. Even if those costs prove to be substantial, other options are available, including zero liquid discharge systems and the selection of a SO_2 control technology that achieves the emission limit without generating a wastewater stream, such as NID scrubbers, which we believe are capable of achieving our emission limits, and have been selected in some recent installations.[119] In addition, we believe that at least one of the studies that produced actual costs that were used to construct the IPM cost algorithms included wastewater treatment costs. Lastly, we did not receive any documentation from any facility to substantiate any wastewater treatment costs, including the figures that S&L cites.

Comment: Luminant and others allege we did not properly balance costs and visibility benefit and stated we should have used the dollar per deciview ($/dv) metric.

Response: We disagree that the $/dv metric is more meaningful than our use of the $/ton metric in conjunction with our consideration of the visibility benefit from the installation of controls. As we noted in our Oklahoma FIP,[120] use of the $/dv metric would most likely require the development of thresholds of acceptable costs per deciview of improvement for BART determinations for both single and multiple Class I analyses, and we have not developed such thresholds. This decision by EPA not to use this metric in a FIP was reviewed and upheld in *Oklahoma* v. *EPA* by the Tenth Circuit Court.[121] We see no reason to deviate from our view of the dollar per deciview metric in the reasonable progress context that applies here. We also note that the use of the dollar per deciview metric is further complicated in the present case due to our use of CAMx modeling. As we discuss in our proposal and elsewhere in the Modeling section of this document and in Modeling Sections of our RTC document, there is no way to directly compare the CAMx modeling we used in our proposed Texas/Oklahoma FIPs with previous CALPUFF modeling results because of differences in the models, model inputs, and metrics used.[122]

L. Cost Versus Visibility Benefit

Comment: Our proposed controls would not result in perceptible visibility improvements and thus should not be finalized. Commenters also stated that the required controls result in miniscule or insignificant visibility improvements.

Response: We disagree that the Regional Haze Rule requires that controls on a source or group of sources result in perceptible visibility improvement.[123] As we noted in our TSDs, we derived much of our approach to the analysis of control costs and visibility impacts from the BART Guidelines.[124] In a situation where the installation of BART may not result in a perceptible improvement in visibility, the visibility benefit may still be significant, as explained by the Regional Haze Rule: [125]

> Even though the visibility improvement from an individual source may not be perceptible, it should still be considered in setting BART because the contribution to haze may be significant relative to other source contributions in the Class I area.

We accordingly disagree that selection of control measures should be contingent upon perceptible visibility improvement. As we stated in our previous rulemaking addressing the BART determinations in Oklahoma: [126]

[117] Control Cost Manual, p. 2–3.

[118] LUMINANT_000277496.pdf and LUMINANT_REGHAZ_1–000001183 to –000001257.pdf.

[119] We recently proposed approval of NID as BART for the Flint Creek Unit 1 in Arkansas (80 FR 18944). Other recent installations include the Homer City Units 1 and 2, Boswell Unit 4, Brayton Point Unit 3, and Indian River Unit 4.

[120] Response to Technical Comments for Sections E. through H. of the **Federal Register** Notice for the Oklahoma Regional Haze and Visibility Transport Federal Implementation Plan, Docket No. EPA–R06–OAR–2010–0190, 12/13/2011, pdf 116.

[121] *Oklahoma* v. *EPA,* 723 F.3d 1201, 1221 (10th Cir. 2013).

[122] See our FIP TSD, page A–35 and modeling section of the RTC document.

[123] It is generally recognized that a change in visibility of 1.0 deciview is humanly perceptible.

[124] See the discussion in our FIP TSD, beginning on page 6.

[125] 70 FR 39129.

[126] 76 FR 81739.

Given that sources are subject to BART based on a contribution threshold of no greater than 0.5 deciviews, it would be inconsistent to automatically rule out additional controls where the improvement in visibility may be less than 1.0 deciview or even 0.5 deciviews. A perceptible visibility improvement is not a requirement of the BART determination because visibility improvements that are not perceptible may still be determined to be significant.

Thus, in our visibility improvement analysis, we have not considered perceptibility as a threshold criterion for considering improvements in visibility to be meaningful. Rather, we have considered visibility improvement in a holistic manner, taking into account all reasonably anticipated improvements in visibility and the fact that, in the aggregate, improvements from controls on multiple sources will contribute to progress towards the goal of natural visibility conditions. Visibility impacts below the thresholds of perceptibility cannot be ignored because regional haze is produced by a multitude of sources and activities which are located across a broad geographic area. In this action, as discussed below, we found that the required cost-effective controls reduce visibility impairment from those sources with the largest visibility impacts and result in meaningful visibility benefits towards the goal of natural visibility conditions.

As we have noted and discussed in a separate response to comment, the results of the CAMx modeling we have utilized in our proposal cannot be directly compared to the results of CALPUFF modeling, which has been utilized in the vast majority of other BART and reasonable progress/long-term strategy actions, because of differences in the models, model inputs, and metrics used.[127] Many of these differences result in CAMx modeled visibility impacts and benefits that are much lower than the CALPUFF modeled visibility impacts and benefits relied on in other actions. We disagree with commenters that the visibility benefits from the controls in our FIP are miniscule when the differences in modeling analyses are considered. We observe that several comments that are critical of the extent of the visibility benefits have cited only to benefits from the scrubber upgrades, omitting the total anticipated visibility benefit from all required controls. As we discuss in the FIP TSD and in separate responses to comments, we believe it is necessary to consider visibility benefits based on ''clean'' natural background conditions to assess the full potential for visibility benefits from controls. For example, we estimated that the required controls provide for over 3 dv improvement on 20% worst days at the Wichita Mountains when estimated using a ''clean'' background and result in improving projected visibility conditions by 0.45 dv over the visibility conditions projected by CENRAP and Texas for 2018 and an estimated 0.62 dv improvement in the visibility conditions in 2018 when considering recent actual emissions (values are for 20% worst days). The required controls result in a greater than 5% improvement in overall visibility conditions at the Wichita Mountains on the 20% worst days. We also estimate that the required controls significantly reduce the projected delay in meeting natural visibility, helping to achieve that goal 25 to 30-years earlier at Big Bend and the Guadalupe Mountain by our projections.

The CENRAP modeling showed that Texas sources have significant visibility impacts at the Wichita Mountains and the Texas Class I areas. Our analysis identified those point sources with the greatest contributions to visibility impairment at these Class I areas, and the required controls reduce visibility impairment from those sources with the largest impacts where controls were determined to be available and reasonable for this first planning period. For example, the Monticello and Big Brown facilities are projected to contribute approximately 1.3 Mm^{-1} and 1.2 Mm^{-1}, respectively, to visibility impairment on the 20% worst days at the Wichita Mountains in 2018 based on the CENRAP 2018 projected emissions for these facilities.[128] This is 1.7% and 1.5% of the total visibility impairment at the Wichita Mountains.[129] In our FIP TSD we noted that Texas used an impact extinction level threshold of 0.5 Mm^{-1} (a level less than half of the estimated impact from the Monticello or Big Brown facilities) from all sources in a state as a threshold for inviting another state to consult. Oklahoma selected a threshold of 1.0 Mm^{-1} to determine which states should consult in analyzing visibility impairment at the Wichita Mountains.[130] We also noted that the largest projected contribution from all point sources within a state at the Wichita Mountains after Texas (14%) is Oklahoma at 3.9%. In other words, elimination of all point sources in Oklahoma would result in less visibility benefit (3.9%) than the required controls (greater than 5%). As these facts demonstrate, the identified facilities have significant impacts on visibility conditions. Our technical record makes it equally plain that the required controls reduce impacts from these sources and result in meaningful visibility benefits towards the goal of natural visibility conditions.

Comment: Texas' choice of 0.5 deciview as a benchmark for total visibility improvement (from all sources) to use in its four-factor analysis was reasonable and consistent with EPA guidelines. Under the BART Guidelines, a source ''contributes to any visibility impairment,'' and thus becomes subject to BART, if it has an impact greater than 0.5 deciview at any Class I area. It is thus logical that a level of visibility improvement at a single Class I area that is less than the threshold at which a source becomes subject to BART in the first place would be deemed insignificant for all sources. Indeed, in other regional haze actions, EPA has ''defer[red]'' to states' consideration of the 0.5 deciview threshold. And given Congress's special emphasis on BART sources, Texas' reference to the BART 0.5 deciview threshold to evaluate reasonable progress for the first planning period was conservative, and Texas could reasonably determine that total visibility benefits below the BART threshold for an individual source should be deferred until a later planning period for reasonable progress.

Response: We disagree that Texas' choice of a 0.5 dv visibility threshold, including the manner in which it was applied, was proper in its analysis. First, the quote from our BART Guidelines was based on CALPUFF modeling and not CAMx modeling. Texas extrapolated results from CAMx modeling to estimate the visibility improvement due to all the identified controls in their analysis and then compared it to a threshold developed for CALPUFF modeling. As we state in the FIP TSD and discuss in detail in our response to comments, ''[a] common metric used in BART visibility modeling using CALPUFF is the BART screening level of 0.5 del-dv used by most states for screening out facilities from further BART consideration. However, there are a number of factors that make the two analyses different and not comparable, invalidating the use of the BART screening metric, or other such comparisons with modeled visibility impacts for reasonable progress with

[127] FIP TSD at A–35.

[128] Light extinction, in units of inverse megameters (Mm^{-1}), is the amount of light lost as it travels over one million meters. The haze index, in units of deciviews (dv), is calculated directly from the total light extinction, bext, as follows: HI = 10 ln(bext/10).

[129] We note that the impacts from Big Brown and other facilities are even larger when considering recent actual emissions rather than the CENRAP 2018 projected emissions.

[130] See Texas Regional Haze SIP Appendix 4–1: Summary of Consultation Calls and Section X.A. of the Oklahoma Regional Haze SIP.

CAMx or CMAQ.'' [131] In the FIP TSD and in separate responses to comments we discuss the differences in the models, model inputs, and metrics used. Many of these differences contribute to CAMx modeled visibility impacts and benefits for reasonable progress being much lower than the CALPUFF modeled visibility impacts and benefits for BART relied on in other actions. As detailed in the FIP TSD, these differences include the emission rates modeled, the metrics used and whether the deciview impacts are calculated based on ''clean'' natural background conditions or a ''dirty'' background based on degraded visibility conditions projected for 2018. The CALPUFF emissions modeled for BART are representative of maximum emission rates and are therefore usually significantly larger (often in the range of double) than average emission rates used in CAMx modeling for a reasonable progress analysis. One of the main metric differences is that the CALPUFF analysis for BART utilizes a clean background and compares the 8th highest daily maximum impact from the specific source modeled to compare against a 0.5 dv threshold to indicate significant impacts while the visibility benefit that was estimated by Texas to assess the benefit of additional controls for reasonable progress was based on a ''dirty'' or degraded background and average benefits over the 20% worst days observed by the monitor at the Class I area which may or may not be inclusive of the highest impact days from the specific source modeled with CALPUFF for BART. As we discuss in detail in the FIP TSD, because the deciview metric is a logarithmic function of extinction, visibility impacts and improvement calculated based on ''dirty'' conditions are substantially lower than those calculated based on natural ''clean'' conditions.[132] These differences were not considered in Texas' visibility analysis and selection of threshold. We note that Texas did calculate visibility impacts compared to natural visibility conditions and focused on the maximum impact from the modeled sources in their BART visibility analysis, which also relied on CAMx photochemical modeling, to determine the significance of visibility impacts from BART sources for BART screening purposes. However, in assessing the benefit of additional controls for reasonable progress, Texas only considered visibility benefits averaged over the 20% worst days based on a ''dirty'' or degraded background.

The difference between comparing visibility improvement on a ''clean'' and ''dirty'' background is analogous to comparing the change in sound volume that would occur if one person stopped singing loudly in an empty room (clean background) to the change that would occur if one person stops singing loudly in a room crowded with a 100 people singing loudly (dirty background). In both cases, to return the room to natural background sound level, the individual singers must be addressed, but there will be little or no perceptible difference in volume when one singer in the crowded room stops singing. To carry the analogy further, our analysis was designed to identify the Texas sources with the greatest visibility impact (the loudest singers) and address them in this first planning period.

Second, the 0.5 dv threshold in the context of BART is used to assess the maximum total visibility *impact* from all BART units at a facility. If the impact from all the BART sources at a facility is above the threshold, then each BART unit must be evaluated for controls, and therefore the visibility *improvement* anticipated from controls would be less than 0.5 dv on a facility basis, and much less than 0.5 dv on a unit specific basis for BART sources with multiple BART units. For these reasons, the BART threshold of 0.5 dv has no relation to the analysis Texas performed and is inappropriate. We also note that we discuss in the preamble to the final Regional Haze Rule and Guidelines for BART Determinations that a threshold less than 0.5 dv may be appropriate.[133]

Even setting aside Texas' approach of aggregating sources with varying impacts on visibility, the use of a 0.5 dv threshold as applied by Texas for determining the significance of visibility benefits of all controls combined would have ensured that little visibility improvement would occur during this planning period. Texas and Oklahoma acknowledged in their SIP submittals that sources in Texas have a large impact on visibility at the Wichita Mountains; indeed, the visibility impacts at this Class I area from Texas point sources are several times greater than the impacts from Oklahoma's own point sources. Based on CENRAP 2018 modeling, all point sources in Texas combined have a visibility impact in terms of light extinction of 10.58 Mm^{-1} at the Wichita Mountains, which based on ''dirty'' 2018 CENRAP projected background conditions equals a 1.34 dv impact for the 20% worst days. Therefore, adopting the 0.5 dv threshold, using Texas' approach to assessing reasonable progress measures, would require the identification of a control set large enough (and with a correspondingly large total cost) to address over one-third of the total impacts from all Texas point sources, before the visibility benefit would be considered significant. To put this into context, achieving the national goal at the Texas Class I areas will require just over ten deciviews of improvement (approximately a reduction in light extinction of 35 Mm^{-1}), a task that EPA has estimated could reasonably take until 2064. Given that the Regional Haze Rule recognizes that improving visibility is an iterative process that will take many years, declining to establish any additional measures to ensure reasonable progress until Texas could identify a combined set of cost-effective and affordable controls that could achieve 0.5 dv or more improvement is unreasonable, especially when there are cost-effective and affordable controls that result in meaningful visibility improvements towards the goal of natural conditions. We also note that delaying even incremental action during this first planning period pushes out the likely date of achieving natural conditions well past 2064.

Comment: Earthjustice stated that based on its analysis,[134] our proposed FIP would result in billions of dollars in public health benefits. According to Earthjustice, the same pollutants that cause visibility impairment also cause significant public health impacts. Nitrogen oxides are precursors to ground level ozone, which is associated with respiratory diseases, asthma attacks, and decreased lung function. Similarly, sulfur dioxide increases asthma symptoms, leads to increased hospital visits, and can form particulates that aggravate respiratory

[131] FIP TSD at A–35 and modeling section of the RTC document.

[132] FIP TSD at A–38. ''For example, see Figure A.3–5 which shows the del-dv change due to a 10 (1/Mm) change at both the 2018 projected extinction level [''dirty background''] and the 2064 natural visibility conditions [''clean background''] extinction level for the Wichita Mountains. In the 'dirty background' case the 10 (1/Mm) yields a 1.26 del-dv, whereas in the 'clean background' case the same 10 (1/Mm) yields a 3.86 del-dv improvement. In this example, the 'clean background' situation yields a del-dv improvement 3 times greater than the 'dirty background' for the same level of extinction improvement.

[133] ''. . ., if there were 100 sources each changing visibility by 0.1 deciviews, the total impact would be a 10-deciview change in visibility. In this hypothetical example, all 100 sources would be contributing, in equal amounts, to substantial visibility impairment . . . .'' 70 FR 39121.

[134] Written Report of George D. Thurston Regarding the Public Health Benefits of EPA's Proposed Rulemaking Regarding Texas And Oklahoma Regional Haze, April 18, 2015. Visibility And Health Modeling Technical Support Document to Comments Of Conservation Organizations, prepared by Dr. H. Andrew Gray, April 20, 2015.

and heart diseases and cause premature death. We received many additional comments from groups, private citizens, and a member of Congress that expressed similar public health, welfare, and economic benefits, including ecosystem and tourism benefits.

Response: We appreciate the commenters' concerns regarding the potential health benefits of air pollution controls to improve air quality In Class I areas. We generally agree that the same emissions that cause visibility impairment can also cause health related problems, such as respiratory ones. We agree that although our action addresses visibility impairment, our FIP requires emissions reductions that will result in co-benefits for public health, welfare, and economic benefits. However, for purposes of this action, we are not authorized to specifically consider these types of benefits under the regional haze program.

M. Natural Conditions

Comment: We received comments from the TCEQ and a number of facilities and trade organizations that we should have approved Texas' natural conditions calculations for Big Bend and the Guadalupe Mountains. These commenters state that Texas rightly discarded our default values in favor of its refined estimates in accordance with our guidance. In doing so, these commenters state Texas rightly assumed all the visibility impairment due to coarse mass and fine soil was due to natural causes. Earthjustice stated that Texas did not properly support its calculations. Earthjustice stated that because Carlsbad Caverns in New Mexico (approximately 40 miles from the Guadalupe Mountains) uses the same monitor and we previously approved New Mexico's use of our default natural conditions estimate, allowing Texas to use a different value is inconsistent.

Response: We agree with the commenters that the Regional Haze Rule and our guidance [135] do allow states to develop an alternate approach to estimate natural visibility conditions. However, in adopting an alternate approach, that approach must be fully supported and documented. The TCEQ's analysis and our own observations do support a conclusion that much of the contribution of coarse mass and fine soil to the visibility impairment at the Guadalupe Mountains and Big Bend is due to natural sources. They do not demonstrate that 100% of this contribution is due to natural sources. Like us, the FLMs did not agree with the assumption that 100% of the coarse mass and soil was natural, and pointed to human activity in the region. The FLMs ''suggested that the commission could judiciously use 80 percent as the natural source of coarse and fine dust and 20 percent of coarse and fine dust due to human activity.'' [136] Although the TCEQ presented the FLM's suggestion in its SIP, it ultimately adopted its own estimate, based on its unproven 100% coarse mass and soil assumption. Another option that we noted in our proposal that was open to the states, and the one we used in proposing the natural conditions for the Texas Class I areas in our FIP, was the ''new IMPROVE equation'' that was adopted for use by the IMPROVE Steering Committee in December 2005.[137] This refined version of the IMPROVE equation provided more accurate estimates of some of the factors that affect the calculation of light extinction. The TCEQ started with this refined version of the IMPROVE equation, but further altered some of its parameters concerning the contributions of coarse mass and fine soil, without adequate documentation. We found that the TCEQ's documentation was flawed, but we are under no obligation to follow in the TCEQ's footsteps and make whole its methodology, when we had already provided guidance with default natural visibility conditions, which were further refined by the 2005 IMPROVE Steering Committee. We agree with Earthjustice that it is reasonable to expect that both Carlsbad Caverns and the Guadalupe Mountains should have the same or nearly the same natural conditions. We urge Texas and New Mexico to work together to resolve this issue in the next planning period. Even as we are disapproving Texas' natural conditions estimates, we conclude that our determinations for emissions limitations for EGUs in the FIP for the first planning period would be justified on the basis of natural conditions estimates at either levels in the SIP or the levels in the FIP, given the level of visibility impairment at each Class I area above the different estimates for natural conditions and the availability of cost-effective controls at those sources with the largest visibility impacts that result in meaningful progress towards the natural visibility goal. Furthermore, as we noted in our proposal, based on both our recalculated natural conditions and the Texas natural condition estimates that we are disapproving, Texas' Class I areas are not projected to meet the uniform rate of progress in 2018 according to the CENRAP modeling and are not projected to meet the goal of natural visibility conditions by 2064.[138]

Comment: Luminant's contractor AECOM noted that in developing its SIP, Texas found that some of the haziest days at its two Class I areas are the result of uncontrollable natural conditions such as windblown dust and wildfire emissions. AECOM developed a daily threshold percentage of total aerosol extinction [139] caused by CM, OMC, and soil species for each Texas Class I area. This threshold was developed by constructing histograms of the 20% worst days for a ''noticeable step-up in frequency'' of higher contributions of CM, OMC, and soil. AECOM then added this additional extinction to our default natural conditions extinctions, resulting in alternate natural conditions estimates that it suggests we adopt. AECOM states that with these new natural conditions, the uniform rates of progress will be met for Big Bend and the Guadalupe Mountains.

Response: Although AECOM restricts its assumption to specific days, it nevertheless assumes that all coarse mass, organic mass carbon and soil visibility impacts at Big Bend and the Guadalupe Mountains are 100% due to natural causes. AECOM provides no documentation to support this conclusion. Although we agree that much of those species contributions are due to natural sources, we do not believe that all of these contributions are due to natural sources. Fires, windblown CM and soil do have both anthropogenic and natural origins. As an initial matter, we believe that AECOM erred in assembling its histograms. We reconstructed these histograms and note they differ significantly from those AECOM presented. In fact, we believe the ''noticeable step-up in frequency of higher contributions of CM, OMC, and soil (*i.e.,* from right to left)'' that AECOM points to is more muted for

[135] Guidance for estimating natural visibility conditions under the Regional Haze Rule, EPA, September 2003, p 1–11.

[136] Appendix 2–2 of the Texas Regional Haze SIP.

[137] The IMPROVE program is a cooperative measurement effort governed by a steering committee composed of representatives from Federal agencies (including representatives from EPA and the Federal Land Managers) and regional planning organizations. See our proposal for additional information on the IMPROVE program and the new IMPROVE equation.

[138] 79 FR 74832

[139] Note that although natural conditions are ultimately expressed in deciviews (dv), the IMPROVE equation first calculates aerosol extinctions by contributions to extinction by all relevant species, of which coarse mass and fine soil are two. Total extinction is then converted to deciviews.

both Class I Areas when the histograms are assembled correctly, to the point it is essentially absent for the Guadalupe Mountains. We noted other problems that cause us to conclude that AECOM's methodology should not be used. Moreover, under the Regional Haze Rule, even if it were concluded that the uniform rate of progress will be met for Big Bend and the Guadalupe Mountains, this does not change the requirement that the reasonable progress goals be selected based on proper consideration of the four factors. As discussed in the proposal and the RTC document, the uniform rate of progress is not a ''safe harbor'' under the Regional Haze Rule.

N. Consistency With Our Other Regional Haze Actions

We received a number of comments alleging specific instances of inconsistency with our previous SIPs and FIPs, as well as with our regional consistency rules at 40 CFR 56.5(a)(1) and (2). We have extracted all of these alleged instances of inconsistency, and we address them in detail in a separate consistency section within our RTC document. We recognize that we have a duty to ensure our regional haze actions are carried out in accordance with the CAA, Federal regulations, and our policies, and are as consistent as reasonably possible with other regional haze actions as required under our regional consistency rules (40 CFR 56.5(a)(2)), recognizing the fact-specific nature of individual regional haze plans and determinations. As we discuss below, we believe that in this action, which is one of the last remaining regional haze SIP reviews of the first planning period, we have been as consistent with our previous actions as is reasonably possible. We disagree that our action is inconsistent with the reasonable progress requirements or our prior SIP actions. While our regional consistency regulations and policies require us to carry out our actions pursuant to the CAA in a consistent manner across EPA regions as reasonably as possible, they do not require uniformity between those actions in all circumstances and instead, ''allow for some variation'' in actions taken in different regions.[140] As explained in detail in the separate consistency section of our RTC document, we believe that we have acted consistently with the CAA and our regional haze regulations in taking these specific actions for Texas, and in accordance with 40 CFR 56.5, our final action is ''as consistent as reasonably possible'' [141] with other actions given the specific facts presented in Texas and Oklahoma. We thus disagree with these comments. We note that staff from Region 6 have worked closely with EPA headquarters throughout the proposed and final actions regarding the Texas and Oklahoma regional haze requirements, including in the analysis and conclusions contained in the SIP and FIP determinations included in this final rule. As explained fully in our RTC document, we note that commenters' citation to the *National Environmental Development Association's Clean Air Project* v. *EPA* (*NEDA CAP*) case is distinguishable from our action here.[142]

Developing solutions to the complex problem of regional haze requires effective consultation among states. During the first planning period, the states worked together through RPOs to help develop their regional haze SIPs. To assist in this effort, we provided tens of millions of dollars to the RPOs following the issuance of the 1999 Regional Haze Rule to fund the development of the technical tools and analyses necessary to address regional haze and to facilitate consultation among the states. The states set up five RPOs to address visibility impairment from a regional perspective. The technical analyses done by the RPOs for the first round of regional haze SIPs greatly increased the understanding of the problem of visibility impairment at the Federal Class I areas, including that of the specific contribution of different species of pollutants.

Given the regional differences in the degree of visibility impairment, the pollutants of concern, and the impacts of fire and international emissions, we did not prescribe a one size fits all approach to reasonable progress. The RPOs accordingly adopted somewhat different approaches to recommending potential measures to ensure reasonable progress. However, the RPOs and the states all agreed that large stationary sources of SO_2 are the typically the primary cause or one of the primary causes of anthropogenic visibility impairment at this time. In addition, in some regions of the country, the RPOs and the states also recognized NO_X as a similarly important cause of visibility impairment.

In our review of the regional haze SIPs, we have attempted to take into account the differences among states in assessing the reasonableness of each state's SIP submittal. By its nature, each regional haze decision is a very fact specific determination requiring the consideration of multiple factors. After examining all instances of perceived inconsistency with other actions, we believe that when all of the factors are considered in their full context, the situation for Texas and Oklahoma differs sufficiently from these other actions cited as being inconsistent with this action to warrant the approach that we have taken. Furthermore, we found that in many instances some commenters reproduced incomplete quotes from our previous actions, or otherwise took those quotes out of their proper context, leading to an inaccurate characterization of the facts in some cases.[143] Often a sentence immediately preceding or following the reproduced quote in fact provided that context. In other cases, commenters called out a particular difference between some aspect of our technical analysis in comparison to what was used in a previous SIP or FIP, without providing the reasoning for those differences. In many other cases, the commenters simply misunderstood or otherwise misinterpreted the facts.[144]

Many commenters compared our CAMx modeled visibility impairments or improvements with those in other actions modeled using CALPUFF and concluded that our proposed visibility improvements were not enough to merit controls when compared to those other actions. These commenters universally failed to account for the differences between these two modeling platforms, the model inputs, and the metrics used.[145] Many of these differences result in CAMx modeled visibility impacts and benefits that are much lower than the CALPUFF modeled visibility impacts and benefits relied on in other actions. As we have noted and discussed in separate responses to comments and the FIP TSD, the results

[140] 80 FR 50258.

[141] 40 CFR 56.5(a)(2).

[142] *National Environmental Development Association's Clean Air Project* v. *EPA* (NEDA CAP), No. 13–1035 (D.C. Cir., May 30, 2014).

[143] See for example: (1) Our response to Luminant's comment concerning the ''contribution of coal combustion sources'' in the Alaska SIP, (2) Our response to CCP's comment concerning the consideration of visibility in the North Dakota SIP, or (3) Our response to CCP's comment concerning Texas' use of a $2,700/ton cost threshold.

[144] See for example: (1) The TCEQ's comment letter at page 14 concerning the Arkansas-Missouri consultations, (2) the AECT's comment letter at page 9 that we did not allow Texas to consider emissions from natural sources, such as wildfires and dust storms, in establishing natural visibility conditions, (3) The CCP's comment letter at page 8 concerning Texas' use of a $2,700/ton cost threshold.

[145] See our FIP TSD, beginning on page A–35, in which we explain why key differences in CALPUFF and CAMx preclude the comparison of their respective results and why CAMx results for RP are generally much less than CALPUFF results for BART for the same facility/emissions due to the model inputs and metrics used.

of the CAMx modeling we have utilized in our analysis cannot be directly compared to the results of CALPUFF modeling, which has been utilized in the vast majority of BART and other reasonable progress/long-term strategy actions.

Some commenters criticized us for disapproving the reasonable progress and long-term strategy consultations between Oklahoma and Texas, when other state-to-state consultations similarly failed to result in additional controls. Often these comparisons were made without regard to the specific facts, such as the magnitude of the visibility impacts that Texas sources have on the Wichita Mountains in Oklahoma in relation to the relative impact of the sources in those other actions, or the overlooked cost-effective controls that were available to Texas sources to address those impacts. Other commenters' comparisons simply focused on the result without regard to the substance: They noted instances where two other states consulted and neither required additional controls, and concluded that Texas was being treated unfairly.

Commenters also argued that our proposed disapproval of Texas' reasonable progress analysis was based on Texas' decision not to undertake a source-by-source analysis of emission controls. The commenters pointed to a number of other regional haze SIPs approved by EPA where states had relied on analyses of the reasonableness of controls for various source categories. The commenters claimed that these examples demonstrate that we accepted analyses of source categories in other states and that we should not, therefore, disapprove Texas' reasonable progress analysis on the grounds that it failed to look at controls on a source-by-source basis. These commenters ignore the fact that Texas' reasonable progress analysis was, in part, based on a source-by-source analysis. However, Texas set that analysis aside in favor of comparing the combined costs of all controls— not those for specific source categories— against its calculation of the total visibility benefit. More importantly, however, as we have explained elsewhere in this action, our objection to Texas' approach to evaluating potential reasonable progress controls was not grounded in whether it used a category or source-by-source analysis. Rather, our disapproval of Texas' reasonable progress analysis is based on the fact that its flawed methodology ignored cost-effective controls that, as we demonstrated in our proposal, would result in significant visibility benefits.

Commenters also raise questions concerning our approval of regional haze SIPs where states relied on implementation of CAIR or CSAPR to satisfy BART. The commenters argue we repeatedly found that participation in these trading programs also satisfied reasonable progress obligations for these states. One commenter claimed it would be illogical to find that CAIR or CSAPR was an appropriate substitute for BART but to then require controls for reasonable progress. We noted in 2005 that the determination that CAIR provided for greater reasonable progress than BART did not answer the question of whether more than CAIR would be required in a regional haze SIP.[146] As we have explained, we are not finalizing our proposal to rely on CSAPR to satisfy the BART requirements for EGUs in Texas, and at this point it is not certain what Texas' CSAPR budgets will be in the future. However, the remand of the CSAPR budgets for Texas aside, we do not agree that we have been inconsistent in our treatment of Texas. These commenters ignore the meaningful differences between Texas and the states cited. These include the significant impacts that point sources in Texas have on the visibility at the Wichita Mountains in Oklahoma, even after the projected reductions from CAIR/CSAPR, the availability of cost-effective controls that would address the largest visibility-impacting sources, the flaws in Texas' technical evaluation of the reasonable progress and long-term strategy provisions, and the flawed consultations between Texas and Oklahoma. We also note that Texas itself did not rely on its participation in CAIR to satisfy the reasonable progress requirements without further consideration of controls on its EGUs. Rather, Texas considered controls on a combination of EGUs and non-EGUs, but ultimately rejected them based on a flawed analysis of the reasonableness of such controls.

O. Modeling

Comment: We received comments that we should have prepared a modeling protocol and made it available for public/stakeholder review and comment. The commenters state that a modeling protocol is required by EPA modeling guidance.

Response: EPA is not required to develop a modeling protocol and take public comment on it. Our guidance and 40 CFR part 51 Appendix W do not require us to develop a modeling protocol for our technical work conducted to support review or rulemaking. We developed a workplan and consulted with national experts at EPA HQ as needed to develop the proposal that included modeling files, documentation of how the modeling was conducted and results. We included all this information in the materials for the proposal and took comment on all aspects of our analyses and techniques.

Comment: We received comments that our selection of the CAMx model rather than CALPUFF is inappropriate and unjustified. The commenters stated that we did not justify the use of CAMx to model visibility impacts from individual sources and at large distances, and our use of CAMx here is outside of the model's capabilities. Furthermore, these commenters assert that our concerns regarding using CALPUFF are not clear, and they have concerns that overprediction of impacts are also present in CAMx and therefore do not justify the use of CAMx. These commenters also state that we failed to consider and discuss bias and uncertainty in the modeling results and instead relied on the model predictions as definitive results.

Response: We did include a number of reasons in our proposal and Modeling TSD for our selection of the photochemical grid model CAMx over CALPUFF. One of the primary reasons is we evaluated the Texas SIP for reasonable progress and not BART, and the differences in the purposes of these analyses supports the use of different models when the resources are available to utilize a photochemical model. Reasonable progress requires the evaluation of changes in emissions from one or more facilities on visibility impairment at downwind Class I areas, in order to properly account for chemical transformations of those emissions, the model used must also include the other pollutants in the airshed, for which CALPUFF is not as well suited. Reasonable progress analyses typically look at the changes in visibility on the 20% worst days, and this evaluation was done by most states, including Texas and Oklahoma, by utilizing a photochemical grid model (PGM) such as CAMx or CMAQ and not CALPUFF. Therefore, our use of CAMx for evaluation of additional potential controls is consistent with the state's SIP submission.

We also discussed our selection of CAMx vs. CALPUFF and included in the Modeling TSD a number of references to performance analysis comparisons between the two models. There are also many comparisons available in journal articles and online that support using a photochemical grid model (most of these comparison

[146] 70 FR 39104, 39143.

studies are found in the Modeling TSD and the rest are in the docket). Some of the references we provided in the proposal raised concern that the use of CALPUFF could result in model over-prediction and other model performance issues at the distances at which we were evaluating most of the sources in our proposal. CALPUFF model results are used directly, whereas photochemical grid model results such as those achieved through use of CAMx are evaluated with Relative Response Factors (RRFs) to help remove potential bias concerns. While no model is free from bias issues, previous evaluations of the CENRAP databases we used for our analyses have been evaluated and the CENRAP CAMx model performance was considered adequate because the modeled outputs compared well to past measured conditions. As discussed in the following response, the only changes to the CENRAP basecase CAMx modeling we made were to update both the CAMx model version used and the chemical mechanism in order to use the best science and while ensuring model performance was still acceptable.[147]

In sum, there are many reasons for the selection of CAMx over CALPUFF for the purposes of this rule making. CAMx is better suited for evaluating the reasonable progress metric of improvement on the 20% worst days. It is also better suited for evaluating multiple sources in a complex airshed. In addition many references point to CALPUFF's potential overprediction at the distances at issue here. Any bias issues in CAMx are ameliorated by tethering the model to real monitoring data, through the use of relative response factors generated by modeling of base and future cases to predict future monitored values.

Comments: We received comments that we failed to perform a full model performance evaluation and instead compared model results to the CENRAP modeling results despite deviations from CENRAP's modeling protocol. These commenters also assert that we failed to update the modeled emission inventories or consider more recent emissions data, such as the 2011 NEI and EPA's recent projected 2018 emission inventory showing large reductions from the Mercury Air Toxics Standards Rule (MATS). They state that recent monitor data are representative and indicate that our modeling is not representative of anticipated future conditions and was not considered during model performance evaluation.

Response: We did not do a detailed model performance of the 2002 basecase because that had already been done by CENRAP. The only changes we made in the 2002 basecase was to use a newer version of the CAMx model and an updated chemical mechanism to utilize improvements in the science for our analysis and decisions. As we discussed in our proposal materials, these changes were not large and did not warrant a full model performance evaluation. We did compare model results with previous results and determined that model results were very similar and deemed acceptable. It is not uncommon in the modeling community to do some small updates such as we did and not perform a full updated model performance analysis.

With regard to comments that we should have performed a more complete update of the inventory, a full emission inventory update for all emission categories such as biogenic, mobile, non-road, area, and point sources for 2002 and 2018 was well beyond the scope of our review of the SIP submittal. Such an update was not necessary to evaluate whether the modeling and analyses submitted with the original SIP could have led to a conclusion that additional reasonable progress controls are appropriate. Once our evaluation concluded that it could be appropriate for some sources to be better controlled for reasonable progress, we did do minor updates to evaluate the most recent emission levels of EGUs in Texas for the ones being further evaluated for potential controls in our 2018 emissions. Because of the additional focus on these particular sources it was appropriate to use more up to date emissions. We also used the most recent CAMx model version and updated chemical mechanism that included improvements to the source apportionment of single point sources and plume in grid algorithms to use the most recent science for our evaluations.

We evaluated the existing CENRAP 2002 and 2018 emission inventories and whether to update parts of these emission inventories in 2018. After our initial modeling analyses, we did update emissions for the EGUs evaluated for potential controls to use recent actuals in the 2018 modeling, which were thought to better represent emissions from EGUs in Texas based on comments from Texas and EGU owners.[148] We also updated the 2018 emissions for two other sources based on permitting and additional controls. We considered updating the EGU inventory with the emissions inventory from the modeling performed for the MATS rulemaking. At the time of proposal, the best information available was that no other major controls were planned to be installed on EGUs in Texas for SO_2 emissions in response to MATS, therefore using the recent actuals that we used for 2018 emission rates (prior to any potential reasonable progress controls) was the most reasonable emission inventory to use in our further modeling.

Lastly, we disagree with the commenter that the SIP modeling and our further evaluation of 2018 expected levels are not representative. In fact, the recent ambient monitoring data at the IMPROVE sites in the three Class I areas (2011–2013) are influenced by meteorology that has lower than normal transport of pollution from sources in Texas when compared to the base period on which projections are based (2000–2004) and to the 30-year meteorology analysis of transport to the three Class I areas (1984–2013). Thus, examining the 2011–2013 time period overstates the progress that can be expected over long term. In response to comments and information provided we conducted further analysis to appropriately evaluate whether the base period was suited for projections to 2018 and also an analysis of how the meteorology accompanying the more recent monitoring data for 2011–2013 compared to normal meteorology conditions. We further note that 2014 also was not quite a normal year [149] and likely similarly biased low for visibility impacts at the Class I areas, but even so monitoring data in 2014 did increase compared to the 2011–13 data. Overall, we conclude that our evaluation of 2002 and 2018 levels and the controls needed for reasonable progress are based on representative periods and that recent monitoring trends are not as representative and not expected to continue if meteorology is more in line with 30-year climatological and transport norms.

Comment: We received comments that CAMx is not the approved model in 40 CFR part 51, appendix W for

[147] Additional information is also included in the Environ Memorandums for the 2002 and 2018 modeling, (*TX166–010–08 Memo_TXHAZE_2002CAMx_ENV_29July2013, TX166–010–09 Memo_TXHAZE_2018CAMx 16Sept13*), the FIP TSD, and in the modeling section of our RTC document.

[148] Texas comments on Draft IPM modeling conducted by EPA for potential national rule making platform provided on June 26, 2014. In this docket's materials as ''TCEQ comment letter to EPA on draft modeling platform dated June 24, 2014 2018 EMP signed.pdf''

[149] Some preliminary analyses of meteorology and pollution levels in 2014 indicated a higher frequency of cold fronts during the summer of 2014 that led to cleaner air from the arctic mixing with the air in the region and resulted in lower pollution build-up and transport of pollution to Class I areas in Oklahoma and Texas.

modeling long-range transport for visibility.

Response: Neither the regional haze regulations nor appendix W requires the use of a specific preferred model for photochemical grid modeling for visibility (regional haze), but we have approved the use of regional scale photochemical grid models such as REMSAD and CMAQ.[150] CAMx is another regional scale photochemical grid model that was utilized by the RPOs and states and approved by EPA. CENRAP conducted its final CAMx source apportionment modeling for the regional haze analysis to be utilized in consultations of its nine state members in development of their SIPs. We approved most of these SIPs that included modeling analyses using CAMx and CAMx is clearly acceptable for evaluating long range transport for visibility. Texas also used CAMx in its reasonable progress analysis. Furthermore, Texas used CAMx to screen small groups of sources and individual sources as part of its BART screening and we approved that approach in 2006/7,[151] based on modeling enhancements that Texas contracted to be developed to assist in assessing single point source visibility impacts on visibility at Class I areas. The visibility impact analysis we performed with CAMx is commensurate with the work originally done by Texas in 2006/7 for its BART screening. Overall, Appendix W gives us discretionary authority in the selection of what models to use for visibility assessments with modeling systems, and models such as CALPUFF, CMAQ, REMSAD, and CAMx that have all been used for that purpose. In this specific situation we determined that CAMx had the best scientific modeling approaches and tolls and was best suited for the complex analysis that we needed to perform.

Comment: We received comments that our CAMx modeling significantly overstates visibility impacts and improvements on which we based our proposal. Commenters describe the ETEX and CAPTEX tracer studies and conclude that the results of these studies prove that CAMx overestimates visibility impacts by a factor of 3. These commenters also claim that these results also show an overestimate in CALPUFF results by a factor of 6 (ETEX) or a factor of 3 to 4 (CAPTEX). When this factor of 3 over-prediction is taken into consideration, commenters state, using the over-prediction amount to scale down modeled visibility improvement from controls results in small improvements and controls should not be required.

Response: We disagree with the commenters' conclusion about the ETEX and CAPTEX tracer studies and the relevance of these tracer study analyses. The analysis provided allegedly indicating that CAMx overestimates visibility impacts by a factor of 3 is an incorrect interpretation and has flaws in the evaluation and conclusions. Details on our technical evaluation and conclusions on why the commenters' analysis is flawed is in the RTC document. We do not condone the calibration of model results to try to adjust for potential biases.[152] Furthermore, the bias amount indicated by the commenter is flawed and is based on limited sampling of model performance evaluations that exist. As stated in a response above, our CAMx modeling analysis utilized a technique called RRF that limits the potential impacts of modeling performance issues since the modeling results are used in a relative sense and absolute modeling values are not directly used. Due to this and other reasons, we do not think that the CAMx modeling overstates the impacts. In fact, several pieces of information indicate the impacts may be underestimated (see modeling section of the RTC document for full discussion and references). Some information indicates that using Plume-In Grid may result in underestimation of a source's impacts. As discussed previously, in particular in the Cost versus Visibility Benefit and Modeling sections, we also disagree that the impacts are small, and we do think the impacts are large enough and the benefits of lowering emissions to meet the FIP emission limits are great enough to require these reductions. As discussed in a separate response to comment in this section, the CALPUFF modeling submitted by the commenter had flaws and is not appropriate even before they did their inappropriate scaling of results.

Comment: Commenters provided back trajectory data (72 hours, 500m) using HYSPLIT [153] and monitored data for 2002 and 2011–2013 for the 20% worst days for Big Bend, the Guadalupe Mountains, and the Wichita Mountains. They conclude that these data show that only a small number of back trajectories [154] come from regions with sources being analyzed and considered for controls. For Big Bend, the back-trajectories submitted by the commenters show the majority of back-trajectories coming from Mexico. For the Guadalupe Mountains, back-trajectories also primarily came from Mexico and visibility impairment is mostly due to natural sources. Back-trajectories for the Wichita Mountains rarely come from sources that we are proposing to control.

Response: The commenters' back trajectory analysis for the base period and 2011–2013 is flawed and did not follow the NOAA draft guidance they cited and appropriate HYSPLIT modeling techniques.[155] In addition, our evaluation, discussed in the modeling section of the RTC document, shows that the 2011–13 time period is not representative of climatological norms regarding the transport wind flows to the three Class I areas. We also find that the base time period 2000–2004 was more representative of climatological norms.

We reached these conclusions by performing our own HYSPLIT modeling of a 30-year period (1984–2013) and concluded that in years with wind flow patterns consistent with the climatological norms over that period a significant number of days have back trajectories that did include areas where the sources proposed for additional controls are located. Furthermore our analysis of the 2011–13 period which was less representative of normal pollution transport patterns also showed a number of back trajectories went through or near the areas with the sources being considered for controls. Therefore these back trajectories do indicate the sources being considered

[150] 40 CFR part 51, appendix W, Section 6.2.1 (e&f).

[151] EPA, TCEQ, and FLM representatives verbally approved the approach in 2006 and in email exchange with TCEQ representatives in February 2007 (see email from Erik Snyder (EPA) to Greg Nudd of TCEQ Feb. 13, 2007 and response email from Greg Nudd to Erik Snyder Feb. 15, 2007).

[152] App. W, Section 7.2.9(a) ''. . . Therefore, model calibration is unacceptable.''

[153] HYSPLIT is a model developed by NOAA to utilize national meteorological modeling files to assess potential air transport.

[154] The HYSPLIT model is designed to utilize archived meteorological fields to generate back trajectories. The model user will pick a certain receptor (in this case one of the Class I Areas) and a specific time (in this case an hour on the day when monitoring indicated there was high visibility impairment) and then the model will assess the meteorological fields and use the wind speed and direction for previous hours to indicate a centerline trajectory of where the air that was monitored was in the hours before the day and time selected. In essence the product is usually a jagged curved line with hourly wind vectors that traces back a centerline for a number of hours (example 72 hours). The back trajectory is a centerline of the wind and the model user has to keep in mind that dispersion and mixing occur so there are areas on either side that can contribute as well and the further back in time the back trajectory is processed the wider the areas on either side of the centerline that could have contributed becomes.

[155] NOAA is National Oceanic and Atmospheric Administration. NOAA is the developer of HYSPLIT and has previously provided draft guidance on the use of the HYSPLIT model.

for control would be expected to reduce visibility impacts at the three Class I areas.

Our analysis of 30-years of back trajectories to assess whether the 2011–13 and 2000–2004 periods were within the climatological norm also indicated that the base period (2000–2004) was more similar to the climatological norm than the 2011–2013 period, so we conclude that using the base period is more representative for projecting 2018 levels.

In sum, the number of trajectories that go near the sources in Texas is large enough to not rule them out from consideration for potential control. In general, we have treated back trajectories as a tool to potentially screen an area out if no trajectories go through an area but if some trajectories go through an area then the area may be evaluated further or, as in this case, the full analysis may rely on more sophisticated tools such as CAMx.

The commenter indicated that a number of back trajectories went through Mexico but failed to mention that many of these also went through Texas. Therefore, sources in Mexico and Texas could contribute emissions to the visibility impairment at the Class I Areas. We have concluded that the back trajectory data provided by the commenter do not support their assertions that transport from the regions with those sources we are controlling is rare. The data they have provided are inconsistent with the guidance and general practices and are for years that are not representative of normal climatological patterns with respect to transport wind flow to the Class I areas. Furthermore, the back trajectories submitted by the commenter do in fact show transport from regions of Texas for some days. Our additional analysis identified the normal wind patterns over a 30-year period and determined that based on normal conditions, transport does occur from the regions in Texas with those sources we are controlling.

HYSPLIT is a meteorological transport model but does not assess the dispersion of and impacts from pollutants from differing sources and does not have chemistry to correctly assess the potential impacts of secondary particulate matter. We used the CAMx model, which does account for pollutants and utilizes atmospheric chemistry mechanisms to calculate changes in visibility impacts from the proposed emission reductions at specific sources. As discussed in a response to comment above in this section, photochemical grid models such as CAMx are best suited for this analysis and determination of the benefit of potential emission reductions.

Comment: Commenters submitted CALPUFF modeling for Coleto Creek Unit 1 for 2004–2006. Results indicate that visibility impacts from the facility are below the 0.5 dv subject to BART threshold. The commenter states that tracer studies suggest CALPUFF overestimates visibility impacts by a factor of 4.5 (on average) and adjusts the CALPUFF model results down by this factor. The commenter concludes that Coleto Creek's calibrated impacts are very small and any visibility benefit from controls would be even smaller.

Response: We have reviewed the CALPUFF modeling provided for Coleto Creek Unit 1 and do not concur with the conclusions that Coleto Creek's impacts are small. We have a number of concerns with the CALPUFF modeling provided: (1) It utilizes the wrong years for modeling; (2) the modeling does not comply with the original BART CALPUFF modeling protocol that Texas and EPA approved; and (3) it uses some inappropriate assumptions, including the calibrating of modeling results based on limited analyses using other databases and locations that are not directly comparable to assessing impacts from Coleto Creek's units. The 0.5 dv threshold was utilized as a BART threshold, but our action is for reasonable progress and the 0.5 dv threshold was not set as an applicable threshold in the Regional Haze Rules for reasonable progress (see response in the Cost versus Visibility Benefit section of this document). We used a photochemical grid model which is more scientifically robust than the CALPUFF modeling system and is more appropriate for longer transport distances, such as the distances between Coleto Creek and the Class I areas in Texas and Oklahoma. We performed a multi-tiered analysis in order to identify the Texas facilities with the largest impacts on visibility at Class I areas (in Texas and Oklahoma) and Coleto Creek's facility did rank as one of the largest impacting sources of the more than 1,600 sources considered in Texas. As discussed in another response in this section, we do not condone calibrating CALPUFF model output values. We discuss the commenters' use of the tracer studies in the RTC document but their analysis and conclusions are flawed and not representative of the larger collection of information available that also is discussed in more detail in the RTC document. In conclusion, based on our analysis with CAMx, we think both the visibility impacts of the sources and the benefits from the proposed emission reductions are large enough to be beneficial for reasonable progress.

Comment: Focusing on visibility impacts on the 20% worst days ignores larger impacts from these sources and other sources on other days. This approach is also inconsistent with CALPUFF modeling for BART of the maximum impact from a source for comparison with a 0.5 dv threshold. Consideration of impacts on other days will identify sources for control analysis that will result in visibility improvement on other days and make progress towards the goal of natural visibility conditions.

Response: Under the reasonable progress and long-term strategy requirements of the Regional Haze Rule, the state or EPA in promulgating a FIP must establish reasonable progress goals that provide for improvement on the most impaired days, demonstrate that the established goals are reasonable and develop coordinated emission management strategies to achieve those goals. The most impaired days are defined as the average visibility impairment for the 20% of monitored days in a calendar year with the highest amount of visibility impairment.[156] Because the rule focuses on improving visibility on the most impacted days, we believe it is reasonable and appropriate to focus our analysis on sources that significantly impact visibility on those 20% worst days. While we generally agree with the commenter that this may ignore visibility impacts from sources that impact visibility on days other than the most impaired days, visibility impairment on the current 20% worst days will be reduced as a result of controls implemented to address visibility impairment for this first planning period, and we believe that in the future the most impaired days may shift and be impacted by different sources. Analysis and development of future regional haze SIPs for future planning periods can aim to address those sources that impact any new set of most impaired days. Furthermore, targeted reductions at those sources that significantly impact the most impaired days will also result in improved visibility on days outside of the most impaired days.

CALPUFF modeling is used to provide estimates of the maximum visibility impacts from a source based on maximum emissions and simplified chemistry, irrespective of the relationship to the 20% worst days. It is

[156] This is the definition in the Regional Haze Rule, but it contains an obvious typographical error. It should be interpreted to mean that *visibility* on the most impaired days is defined as stated.

possible that CALPUFF modeling of some of the subset of the 38 sources identified based on Q/d that were not analyzed for additional controls could show significant impacts on the maximum or 98th percentile day, but our CAMx photochemical modeling (which includes all emissions sources and has a realistic representation of formation, transport, and removal processes of particulate matter that causes visibility degradation) provides additional information that allows for the identification of the sources with the greatest impacts on the 20% worst days.

Comment: EPA should have required additional controls on sources beyond what we proposed in our FIP to assure even greater reasonable progress. Certain controls are reasonable and consistent with the proposed controls when impacts at Class I areas other than the Texas Class I areas and the Wichita Mountains are considered. Some specific facilities, such as Oklaunion and H.W. Pirkey, fall above the 0.3% impact threshold for impacts at the Class I areas of interest and should have been evaluated for controls. EPA evaluated controls for Parish and Welsh but did not require controls despite significant visibility benefit and reasonable costs.

Response: We focused our control analysis on the Texas Class I areas and the Wichita Mountains. As discussed in more detail elsewhere in this action, we are disapproving portions of the Texas and Oklahoma regional haze SIPs, including the Texas long-term strategy consultation, the Oklahoma reasonable progress consultation, the Oklahoma established reasonable progress goal for Wichita Mountains and the Texas reasonable progress/long-term strategy analysis and consideration of reasonable controls at Texas sources necessary to establish the Texas and Oklahoma reasonable progress goals. In developing a FIP to address the deficiencies in the Oklahoma and Texas SIPs, we had to analyze the visibility impacts and the availability of reasonable progress controls at Texas sources that impact visibility at the two Texas Class I areas and the Wichita Mountains and establish reasonable progress goals including consideration of an appropriate reasonable progress control analysis for these areas. We expect New Mexico, Arkansas, Louisiana, and Missouri to consider remaining impacts from Texas sources on their Class I areas including the information on visibility impacts from specific sources provided by our analysis, as well as incorporate corrections and updates to emission reductions in consultations and development of their regional haze SIPs for the next planning period.

We disagree with commenters and we note, as further detailed in our RTC document, that when recent actual emissions and unit-level visibility impacts are considered, the units at the facilities identified by the commenters, such as Oklaunion and Pirkey, fall below the percent of visibility impairment threshold we established to identify units for additional control analysis. This threshold was established to identify a reasonable set of units that had the greatest visibility impacts for additional control analysis for this planning period. We note that any increases in actual emissions at these facilities in the future should be considered during development of the regional haze SIP for future planning periods. In future planning periods, as the facilities with the greatest impacts are controlled, the percent of total visibility impairment due to these lower impact facilities will increase and they in turn should be considered for additional control.

Considering the visibility benefits and costs, we disagree that we should have required controls on units at Parish and Welsh. In evaluating the cost of controls, we also weighed how effective the reductions were in achieving visibility benefits. We considered the anticipated visibility benefit in deciviews (for both a ''dirty background'' and a ''clean background'') as well as the reduction in extinction and the percentage of visibility impairment addressed by the controls. Based on our evaluation of these visibility metrics within the cost factor of the four-factor reasonable progress analysis, we determined that additional controls on Parish and Welsh were not required for reasonable progress for the first planning period. In the FIP TSD and the proposed FIP, we note lesser visibility improvement benefits at the three Class I areas for the W. A. Parish and Welsh units compared to the benefits at other facilities that mainly impact the Wichita Mountains. We also note that when considering the costs of controls and the relative visibility benefit, the Parish scrubber retrofits would be slightly more expensive with respect to $/ton but would be much less effective in improving visibility at the Wichita Mountains, when compared to the required controls at the Monticello or Coleto Creek units. For the Welsh scrubber retrofits, the costs ($/ton) would be approximately 50% greater than the cost of scrubber retrofits at Monticello or Coleto Creek and would result in approximately 50% less visibility improvement at the Wichita Mountains. We also considered comments on cumulative visibility benefits of these controls and determined that the cumulative visibility benefits of each new scrubber at the Parish and Welsh units would be less than those at each of the units where we proposed scrubber retrofits and less than that at each of the units with proposed scrubber upgrades with the exception of Limestone, at a cost significantly higher than the estimated cost of scrubber upgrades. Similarly, the total cumulative visibility benefit of controlling the three units at Welsh and the four units at Parish would be less than half the benefit from all the required scrubber retrofits or all the required scrubber upgrades, and at a greater average $/ton cost.[157] While controlling the Welsh and Parish units would result in some additional cumulative visibility improvement, based on our evaluation and weighing of the cost and consideration of the visibility benefits of these controls at the Wichita Mountains, we determined their individual projected visibility improvements do not merit the installation of scrubbers at this time. We encourage the State of Texas to re-evaluate this determination as part of its next regional haze SIP submittal and we note that as the required controls are implemented the significance of impacts and potential benefits from the Parish and Welsh units will increase in terms of percentage of extinction. As discussed in the modeling section of the RTC document, we disagree with comments that this determination is inconsistent with the determination to require controls at Tolk Station or with the determination of required controls in other states for the purpose of reasonable progress.

We agree with the commenter that on a $/ton basis, scrubber upgrades on Parish unit 8 are very cost-effective. However, the visibility benefit and reduction in emissions from this control would be very low when compared to all the other evaluated scrubber upgrades. The estimated visibility benefit from upgrading the scrubber would be an order of magnitude less than all the other evaluated scrubber upgrades and not large enough to require as reasonable progress for this planning period.

Comment: EPA should have analyzed oil and gas sources and NO_X controls for certain point sources in Texas.

Response: With regards to comments on additional controls for NO_X, as

[157] See *TX-116-007-_33_Vis_modeling_summary.xlsx* in the docket to this action for visibility benefits of controls.

discussed in the proposed FIP, we agree with Texas that the predominant anthropogenic emissions impacting visibility are nitrate and sulfate emissions, primarily from point sources.[158] As described in more detail in the FIP TSD, in our initial analysis we focused on point sources and we identified facilities with the greatest potential to impact visibility based on a Q/d analysis considering both SO_2 and NO_X emissions. We then used photochemical modeling to estimate the visibility impacts due to the emissions from these facilities, considering SO_2, NO_X, and all other emitted pollutants. Based on the results of that visibility modeling, we identified a subset of facilities for additional control analysis and determined that the visibility impacts due to these facilities was almost entirely due to their sulfate emissions. Therefore, we determined that to address the visibility impacts on the 20% worst days from these sources, it was only necessary to evaluate sulfate controls for this planning period. Our analysis identified those sources that had the greatest visibility impacts, which we then further analyzed for controls. This analysis did not identify any individual point sources (with the exception of the PPG Glass Works facility) with significant visibility impacts due to NO_X emissions among the group of sources with the greatest visibility impacts. We address our evaluation of NO_X controls for the PPG Glass Works in our RTC document.

Oil and gas emissions are the largest component of area source emissions but are only part of the total NO_X area source emissions. Oil and gas sources that fall within the point source category were considered in our initial Q/d analysis and photochemical modeling used to identify sources for additional control analysis. Similarly with regard to comments on controlling oil and gas sources, visibility impacts from NO_X emissions from area sources are relatively small compared to impacts from point sources of SO_2 and NO_X at the Class I areas impacted by Texas emissions. Focusing on point source emissions of NO_X and SO_2 captured those sources with the greatest impacts on visibility and was a reasonable approach for this planning period.

Comment: Visibility impairment from the ''Other 29'' sources not analyzed for controls are still significant and additional controls should be required. Furthermore, some of the ''1,600 +'' sources not further analyzed collectively contribute to total visibility impairment.[159]

Response: Our Reasonable Progress Guidance discusses the steps to follow in identifying reasonable controls and establishing reasonable progress goals. The key pollutants contributing to visibility impairment at each Class I area should be determined. ''Once the key pollutants contributing to visibility impairment at each Class I area have been identified, the sources or source categories responsible for emitting these pollutants or pollutant precursors can also be determined. There are several tools and techniques being employed by the RPOs to do so, including analysis of emission inventories, source apportionment, trajectory analysis, and atmospheric modeling'' (page 3–1). As discussed in more detail in our proposal and in a separate response to comment in the modeling section of the RTC document, we determined that it was reasonable to focus our analysis on point sources of SO_2 and NO_X.[160] This was based on review of emissions and source apportionment results indicating that these sources were most responsible for anthropogenic contributions to visibility impairment. We then used a Q/d analysis to identify those sources with the greatest potential to impact visibility based on emissions and distance. Additional analysis using photochemical grid modeling was then completed to estimate the visibility impact from those sources. Based on consideration of facility level and estimated contributions to visibility from units at the modeled facilities, we identified those sources that had the greatest visibility impacts to analyze for additional controls. We agree with the commenter that collectively the ''Other 29'' sources and ''1,600+'' sources contribute a sizeable percentage of the total visibility impairment. However, on an individual basis, these point sources have lower contributions and smaller potential for visibility improvements relative to the nine facilities evaluated for additional controls. For example, the proposed controls on only 7 facilities address 5.8% of the total visibility impairment at the Wichita Mountains, while controls on all of the ''Other 29'' sources would address 4.4% of the total visibility impairment. Consistent with our guidance, we identified those key pollutants and sources with the greatest impact on visibility impairment for this first planning period. We also note that the ''Other 29'' includes impacts from San Miguel and the PPG Glass Works facility that were considered for additional controls, and the JT Deely units that are scheduled to shutdown in 2018.

The Regional Haze Rule requires the identification of reasonable progress controls and the development of coordinated emission control strategies in order to make reasonable progress towards the goal of natural visibility conditions. Faced with a very large and unwieldy universe of sources, we followed our guidance and chose an approach that focused on the portion of the universe of Texas sources that contributed the greatest impact to visibility impairment, by establishing a threshold of 0.3% contribution to total visibility impairment on a unit basis for this planning period, thereby identifying a reasonable set of units at nine facilities to analyze for additional controls.[161] Our four-factor analysis concluded that controls on units at seven of the nine facilities analyzed for additional controls were required. As these controls are implemented, the percentage impact from those facilities not controlled will become larger (on a percentage basis) and will be analyzed in future planning periods. In other words, some of the ''Other 29'' will be identified as the greatest impacting sources and should in turn be analyzed for additional reasonable progress controls in a future planning period. This methodology can be used as a consistent procedure to identify facilities for additional control analysis in this and future planning periods and would ensure continuing progress towards the goal of natural visibility conditions. The USDA Forest Service commented that ''the methodology and metrics that EPA used are the most comprehensive seen to date for any SIP/FIP in the country that we have reviewed, and should serve as a model for future efforts to consider the contribution and/or potential benefits of individual sources to visibility.''

Comment: We received comments on the methodology used to identify sources for analysis. Commenters stated that our analysis, beginning with a Q/d analysis and the use of a 0.3% of total impairment threshold for identifying

[158] 79 FR 74838.

[159] ''Other 29'' refers to the facilities identified as having the greatest potential to impact visibility based on the Q/d analysis but were then eliminated from further analysis based on photochemical modeling results. ''1,600 +'' refers to all point sources in Texas from the TCEQ's 2009 point source inventory.

[160] 79 FR 74838.

[161] As discussed elsewhere, San Miguel has already upgraded its scrubber and therefore it was not included in our modeling analysis of additional controls and not included among the nine facilities discussed here. In our FIP, we are finalizing our determination that San Miguel maintains an emission rate consistent with recent monitoring data.

sources for additional analysis was arbitrary, capricious, or improper. In addition, commenters contend that the Q/d analysis selects the wrong sources because it does not consider stack parameters or meteorology. Other commenters suggested that all 38 facilities identified as having the greatest potential to impact visibility by the Q/d analysis should have undergone a four-factor analysis. We also received comments that a lower threshold should have been used, that the threshold was applied inconsistently, and that the 0.3% threshold screened out sources that have a significant visibility impact and should have been evaluated for controls.

Response: We disagree with the commenters' assertion that our analysis, beginning with a Q/d analysis, was arbitrary, capricious, or improper. As explained below and elsewhere in this document, our complete analysis identified those sources with the greatest visibility impacts at the Wichita Mountains and the Texas Class I areas based on consideration of a source's emissions, location, and modeled visibility impairment. Once identified, we performed additional control analysis on these sources to determine through the four-factor analysis if controls were available and cost-effective.

As we discuss at length in the FIP TSD and in our RTC document, we, states (including Texas) and RPOs (including CENRAP) have used a Q/d analysis to identify those facilities that have the most potential to impact visibility at a Class I area based on their emissions and distance to the Class I area. These identified facilities could then be considered for further evaluation to estimate visibility impacts, and then undergo the reasonable progress analysis for determination of reasonable progress controls. The BART guidelines [162] discuss identifying sources with the potential to impact visibility based on a Q/d approach consistent with the method followed in this action. Furthermore, this approach has also been recommended by the FLMs' Air Quality Related Values Work Group (FLAG) [163] as an initial screening test to determine if an analysis is required to evaluate the potential impact of a new or modified source on air quality related values (AQRV) at a Class I area. In the Texas regional haze SIP, the TCEQ relied on a Q/d approach as one of the initial steps to identify sources for additional analysis.[164] We used a similar Q/d approach to identify 38 sources, from the more than 1,600 point sources in Texas that had the most potential to impact visibility due to their location and size. In other words, we started by looking at every point source in Texas [165] and narrowed the field to a much smaller subset of sources with the most potential to impact visibility based on their emissions and location. This approach is a widely used method as an initial step to evaluate a facility's potential to impact air quality and identify those sources with large enough emissions close enough to a receptor to need additional analysis. Using this methodology, we considered every point source in Texas and narrowed the list to a much smaller list of facilities with the greatest potential visibility impacts based on just emissions and distance.

Following the Q/d analysis, we took the additional step of using photochemical modeling, utilizing CAMx with Plume-In-Grid (PiG) and Particulate Source Apportionment Tagging (PSAT). As the commenter states, the Q/d analysis does not take into account stack parameters, meteorological conditions, or chemistry. Given the large geographic distribution of sources and distances to the Class I areas, we recognized that it was highly likely that only a subset of these 38 facilities would have the greatest visibility impacts on downwind Class I areas once meteorology and transport conditions, atmospheric dispersion, chemistry, and stack parameters were taken into consideration, as CAMx with PiG and PSAT can do. We determined it was appropriate to use photochemical modeling to assess the visibility impact from those sources identified by our Q/d analysis. In the same way that Q/d is used as an estimate of the potential visibility impact due to emissions and distance, the photochemical modeling aims to estimate the visibility impacts albeit in a much more refined manner that accounts for chemistry and meteorological conditions. We also note that some RPOs and states used a combination of back trajectory analysis, source apportionment modeling results, and Q/d as a more refined approach to identify sources for additional control analysis for reasonable progress.[166] Our modeling results indicated that a subset of the 38 facilities were the primary contributors to visibility impairment at each Class I area. The results of this modeling were used to verify our initial identification of sources and further eliminate sources from a full four-factor analysis based on facility-level impacts and consideration of estimated unit level impacts, as described in detail in the FIP TSD.

There are a number of different approaches used by states in identification of sources for reasonable progress evaluation but these approaches usually centered around the general premise of evaluating the biggest sources and the biggest impacts on visibility. As we explain in the FIP TSD, we considered the visibility modeling results in a number of ways to determine a reasonable approach to identify those sources with the largest impacts for additional analysis for controls for this planning period. We examined the model results for extinction and percent extinction of the modeled facilities as well as estimated impacts based on more recent actual emissions. We considered both facility level and unit level impacts. We concluded that any unit with an estimated impact greater than 0.3% would be further evaluated. We believe that using a percent impacts approach is appropriate because of its linkage to the reasonable progress concept. For example, a source that has a smaller absolute impact on a relatively cleaner area but a higher percentage impact might be considered for control so that the cleaner area can potentially make progress. We used the 0.3% threshold only as a way to identify a reasonable

[162] See 40 CFR part 51, appendix Y, section III (How to Identify Sources ''Subject to BART'')

[163] Federal Land Managers' Air Quality Related Values Work Group (FLAG), Phase I Report—Revised (2010) Natural Resource Report NPS/NRPC/NRR—2010/232, October 2010. Available at *http://www.nature.nps.gov/air/Pubs/pdf/flag/FLAG_2010.pdf.*

[164] TX RH SIP Appendix 10–1. ''The group of sources was further reduced to eliminate sources that are so distant from any of the ten Class I areas that any reduction in emissions would be unlikely to have a perceptible impact on visibility. The list was restricted to those sources with a ratio of estimated projected 2018 base annual emissions (tons) to distance (kilometers) greater than five to any Class I area.''

[165] The Texas point sources are defined as industrial, commercial, or institutional sites that meet the reporting requirements of 30 Texas Administrative Code (TAC) § 101.10. Permitted point sources in Texas are required to submit annual emissions inventories. The data are drawn from TCEQ's computer-based State of Texas Air Retrieval System (STARS). Annual emission data from 2009 were utilized to calculate the Q/D value for all point sources with reported emissions in Texas. 2009 emissions data available in the docket as ''2009statesum.xlsx''

[166] To select the specific point sources that would be considered for each Class I area, VISTAS first identified the geographic area that was most likely to influence visibility in each Class I area and then identified the major SO_2 point sources in that geographic area. The distance-weighted point source SO_2 emissions (Q/d) were combined with the gridded extinction-weighted back-trajectory residence times. The distance weighted (Q/d) gridded point source SO_2 emissions are multiplied by the total extinction-weighted back-trajectory residence times (Q/d * Bext-weighted RT) on a grid cell by grid cell basis and then normalized. See VISTAS Area of Influence Analyses, 2007 available in the docket for this action.

set of sources to evaluate further. At this point, the resulting reasonably broad set of sources served as a starting place from which to further analyze individual source impacts in the second round of modeling, and balance them against any cost-effective controls that could be identified.

In summary, our analysis properly identified the sources in Texas with the greatest individual visibility impacts for additional control analysis. Commenters are incorrect in their assertion that the visibility impacts from the identified sources are miniscule, or that we started our analysis with the wrong sources. Starting from the entire universe of Texas point sources, we systematically eliminated those facilities that had less potential to impact visibility based on careful consideration of emissions, location, and finally modeled visibility impacts. After identifying those facilities with the greatest visibility impacts, we performed the four-factor analysis to evaluate whether reasonable progress controls were available and cost-effective.

Comment: We received comments that EPA established the deciview as the required metric for establishing and tracking progress towards the reasonable progress goal. EPA's use of extinction or percent extinction and establishment of thresholds is arbitrary, capricious, illegal and without precedent.

Response: We disagree with the commenters that our use of metrics other than deciviews for certain purposes is contrary to regulations. The commenters fail to distinguish between the metrics used to describe overall visibility conditions at a Class I area and the metrics that can be used to describe the visibility impairment due to an individual source, group of sources, a state's sources, or some other portion of the visibility impairment at a Class I area. In describing the overall visibility conditions at a Class I area, we established the deciview as the principle metric. This applies to the calculation of current, baseline, and natural visibility conditions at a Class I area, as well as the reasonable progress goals established as the visibility condition goal for the Class I area at the end of the current planning period. We agree with the commenters that the use of the deciview metric is required in a number of places within the rule that discuss overall visibility conditions and assessing progress towards meeting the desired visibility conditions. Specifically, the state must (1) establish reasonable progress goals expressed in deciviews (40 CFR 51. 308(d)(1)); (2) determine the uniform rate of progress in deciviews (40 CFR 51.308(d)(1)(i)(B)); and (3) determine the baseline and natural visibility conditions expressed in deciviews and the number of deciviews by which baseline conditions exceed the natural conditions (40 CFR 51.308(d)(2)). Consistent with these requirements, we calculated the baseline and natural visibility conditions, the uniform rate of progress, and the number of deciviews by which baseline conditions exceed the natural conditions in deciviews for Big Bend and the Guadalupe Mountains, as well as established reasonable progress goals for the Wichita Mountains and the Texas Class I areas in deciviews.

The deciview metric provides a scale that relates to visibility perception and therefore is useful in assessing the overall visibility conditions that are being or will be perceived at the Class I area. The commenters cite to several actions and the Regional Haze Rule where the benefits of using the deciview metric are discussed, however this is only discussed in the context of overall visibility conditions, such as determining current or natural visibility conditions. This is very different from the fraction of visibility impairment attributable to a source or group of sources. We note that in the final Regional Haze Rule, we do in fact mention the use of light extinction as another metric that states may choose to use.

There is no requirement to use the deciview metric in describing the visibility impairment due to a source or group of sources as part of the analysis required for identifying reasonable controls under reasonable progress. In describing how to identify sources or source categories responsible for visibility impairment, our guidance [167] provides states with considerable flexibility to utilize various tools and techniques that would necessarily involve the use of various metrics other than deciviews. Many states and RPOs, including Texas and CENRAP, relied on a Q/d analysis, described and discussed in depth in separate responses to comments and in our proposed FIP, to identify sources for additional control analysis. The Q/d analysis relies on an annual emissions divided by distance metric, not deciviews. The VISTAS RPO relied on a metric derived from Q/d and residence-time, not deciviews.[168] Some states relied on a simple analysis of emissions to determine which sources should be analyzed.

When assessing the various contributions to visibility impairment due to either source categories or pollutant species from other states and international sources, Texas routinely relied on light extinction and percent of total visibility impairment metrics. For example, Chapter 11 of the Texas regional haze SIP describes the contributions due to sulfate, nitrate, and other pollutants on the 20% worst and 20% best days at the Guadalupe Mountains and Big Bend in terms of light extinction (inverse megameters, Mm^{-1}). Similarly, the extinction metric is used by Texas (see section 11.2.3 of the Texas regional haze SIP) to assess the level of impact on other Class I areas from Texas sources. Texas also used the extinction metric to determine which states significantly impact the Texas Class I areas, applying an impact extinction level threshold of 0.5 Mm^{-1} from all sources in a state as a threshold for inviting a state to consult.[169] Source apportionment modeling performed by the RPOs was utilized by every state to assess the various contributions to visibility impairment at their Class I areas in terms of light extinction and percent contribution to total light extinction. The CENRAP PM source apportionment tool (CENRAP PSAT tool) utilized by all CENRAP states, including Texas and Oklahoma, to review the results of the source apportionment modeling provides results in two ways: Light extinction (inverse megameters) and percentage of total extinction. In our action, we also utilized the methodology and metrics used by the RPOs to evaluate the source apportionment results, the only difference being that our source apportionment modeling provided information on visibility impacts from individual sources instead of source categories, or regions/states. In the FIP TSD, we provide information on visibility impacts from the individual sources in terms of extinction, percentage of total extinction, and in deciviews.

We evaluated the information in terms of light extinction and percentage of total impact to identify a reasonable subset of sources with the largest visibility impacts to analyze for additional controls. Because the overall visibility conditions at different Class I areas can vary greatly, particularly Class I areas in the Eastern U.S. compared to Class I areas in the Western U.S., we determined that it is not enough to consider just the magnitude of extinction from a facility; we must also

[167] Guidance for Setting Reasonable Progress Goals Under the Regional Haze Program, U.S. EPA, OAQPS, June 1, 2007, page 3–1

[168] VISTAS Area of Influence Analyses, 2007, available in the docket for this action.

[169] See Texas Regional Haze SIP Appendix 4–1: Summary of Consultation Calls

consider the percentage of total impairment metric at each Class I area. As we state in the FIP TSD, ''We believe that using a percent impacts approach is appropriate because of its linkage to the RP concept. For example, a source that has a smaller absolute impact [in terms of extinction] on a relatively cleaner area but a higher percentage impact might be considered for control so that the cleaner area can potentially make progress.'' Using the percentage of total visibility impairment metric allows us to somewhat normalize the extinction differences between Class I areas so that we can utilize the same approach at each Class I area and identify a reasonable set of sources to analyze that if controlled would result in meaningful visibility benefits towards meeting the goal of natural visibility at every Class I area. For every Class I area to have the opportunity to reach the natural visibility goals, it is necessary to identify the sources or source categories that significantly impact visibility, identify available controls and analyze whether those controls are reasonable. Had we established a strict threshold based on extinction, we would have had to establish a different threshold for each Class I area. Using a percentage approach, such as the 0.3% of total visibility impairment on a unit basis we used in this action, results in identification of a subset of sources that includes those sources with the greatest visibility impacts at each Class I area. As stated by the USDA Forest Service in its supportive comments, the use of this methodology and metrics, including the use of a small percentage threshold on the 20% worst days is linked to the concept of reasonable progress. We believe it could serve as the model for future efforts to consider the contribution and potential benefits of individual sources to visibility. After identifying which sources to analyze for additional controls based on the percentage impact on a unit basis, we determined which controls were reasonable based on consideration of the four factors, including comparison of cost to the anticipated visibility benefit (deciview improvement, extinction, percentage of total extinction, and the percentage of the total impact from Texas point sources addressed by the control).

Comment: We received comments on the method we used to adjust CAMx results. Commenters stated that we developed a linear relationship between emissions and extinction and then adjusted CAMx modeled extinction linearly with emissions to match proposed controlled emission levels. The commenters stated that the relationship between emissions and light extinction is not linear and that interactions between nitrate and sulfate create a complicated relationship. The commenters cited to the CAMx user guide which they claim supports that the relationship is non-linear. In contrast, Earthjustice said that our approach was reasonable.

Response: We disagree with the comments that the methodology used to estimate visibility benefits from control level emissions was unjustified or unreasonable, and agree with Earthjustice that our approach was reasonable. The linear relationship we developed to extrapolate extinction due to controlled emission rates was a reasonable approach in our technical analysis.

We agree with the commenters that, in general, the relationship between downwind concentrations and emissions can be complicated and non-linear due to complex chemistry, including the fact that reductions in sulfur emissions can result in an increase in ammonium nitrate. Each modeled emission scenario took this complex chemistry into account in estimating the visibility impacts for that scenario. We estimated control efficiencies for a high and low control case scenario that would span the range and give a reasonable approximation of emission reductions of potential controls and maximize the number of data points available to estimate the visibility benefit due to a reduction in emissions.[170] Using the unit level High and Low modeled visibility impacts and the 2018 facility level modeling described in the FIP TSD, we examined the relationship between the various levels of emissions from a modeled site and the modeled visibility impact at each Class I area. For each facility and Class I area, the available modeled data were linear with high correlation and the modeled emission levels were relatively close to the estimated control levels examined. Therefore we used the linear fit to extrapolate the anticipated visibility impact/benefit from a given level of emission/control.[171] We agree that small perturbations relative to the model inputs can be approximated as linear. However, as discussed in more detail in our response to this comment in the RTC document, we disagree with the commenters that we extended the linear treatment to large variations, and we note errors in the commenters' assessment of the differences between modeled and required control levels. The variations between the modeled High control levels and the control levels required in the FIP are relatively small. This is a small perturbation from the modeled levels, a small difference in estimated extinction benefit from the modeled and required control level, and does not impact our overall decisions on the significance of visibility benefits from the required controls. We agree with Earthjustice that the small level of uncertainty in the visibility benefit from these controls introduced by the linear extrapolation does not impact the overall conclusions. In every case, the required control level emissions are the same or less than the high control level modeled, and the visibility benefits from controls at the required control level will be the same or more than those modeled at the high control level. Therefore, the high level modeled visibility benefits can be seen as a lower bound and even these support our decision.

Comment: We also received comments on the calculation of a deciview impact or improvement based on natural ''clean'' background conditions and the estimated visibility impacts/improvement based on recent actual emissions rather than projected 2018 emissions. The commenters contend that the use of natural background overstates the estimated visibility benefit from the proposed controls and that these adjustments based on recent actual emissions and natural background artificially increase projected visibility improvement from the proposed controls. The commenter states that the use of ''natural conditions'' is contrary to the regulations, inconsistent with agency precedent, and arbitrary and capricious and that the analysis does not address the relevant legal issue and is not rationally connected to the final decision (*i.e.* what is a reasonable progress goal for 2018).

Response: We disagree with the commenter that the use of ''natural conditions'' is contrary to the regulations, inconsistent with agency precedent, and arbitrary and capricious. We disagree with the commenter that the analysis does not address the relevant legal issue and is not rationally connected to the final decision (*i.e.,* as defined by the commenter as what is a reasonable progress goal for 2018). The Regional Haze Rule requires that we identify reasonable controls based on consideration of the four statutory factors and establish a reasonable progress goal that reflects the

[170] See FIP TSD at A–54 for a more detailed description

[171] See the file, ''Vis modeling summary.xlsx'' in the docket for this action for our calculations and estimates of visibility benefits from the examined levels of controls.

anticipated amount of visibility improvement from implementation of those controls in additional to all other ''on the books'' controls. Specifically, § 51.308(d)(1)(i)(A) requires consideration of the four factors and a demonstration of how these factors were taken into consideration in selecting the visibility goal. We analyzed the time necessary for compliance, energy and non-air environmental impacts, the remaining useful life, and the costs of compliance including consideration of the anticipated visibility benefits of specific controls on individual units. As discussed in depth below, in considering the anticipated visibility benefits from individual controls, it was appropriate to consider estimated benefits on a ''clean'' or ''natural'' background.

In the FIP TSD, we discuss the need to estimate visibility benefits using both a ''clean'' and ''dirty'' background: [172]

> The deciview improvement based on the 2018 background conditions provides an estimate of the amount of benefit that can be anticipated in 2018 and the impact a control/emission reduction may have on the established RPG [reasonable progress goal] for 2018. However, this estimate based on degraded or ''dirty'' background conditions underestimates the visibility improvement that would be realized for the control options under consideration. Because of the non-linear nature of the deciview metric, as a Class I area becomes more polluted the visibility impairment from an individual source in terms of deciviews becomes geometrically less. Results based solely on a degraded background will rarely if ever demonstrate an appreciable effect on incremental visibility improvement in a given area. Rather than providing for incremental improvements towards the goal of natural visibility, degraded background results will serve to instead maintain those current degraded conditions. Therefore, the visibility benefit estimated based on natural or ''clean'' conditions is needed to assess the full benefit from potential controls.

In considering the visibility benefits of potential controls, we considered deciview improvements as well as the reduction in extinction and percent extinction. By definition, the ''clean'' background analysis using natural conditions eliminates the impact from all other anthropogenic sources, domestic and international. This approach is aimed at assessing the full potential visibility benefit of controls. It is not reasonable to only assess the visibility benefit of controls, the value of installing a control in the immediate future that will permanently reduce visibility impacts from a source, in such a manner that is dependent on the current level of emissions or impact from other sources or other countries. For example, in considering only the estimated visibility benefit from controlling Big Brown using a ''dirty'' background, an increase in visibility impacts from Mexico emissions or emissions from another Texas point source would result in a decrease in the visibility benefit in deciviews from installing controls on Big Brown, making controls appear less beneficial. By using a metric that is independent of all other emission sources (''clean''), we avoid this paradox that the dirtier the existing air, the less likely it would be that any control is required. This was also explained in the preamble to the final Regional Haze Rule and Guidelines for BART Determinations.[173] The use of ''clean'' background is necessary to assess the full potential benefit from controls and does not overstate the visibility benefit.

Our use of ''clean'' background is also consistent with the methodology used by Texas for BART visibility analysis, which also relied on CAMx photochemical modeling with source apportionment. The TCEQ utilized this approach in assessing the visibility impacts from individual sources and groups of sources to determine their significance for BART screening. As detailed in the screening analysis protocol developed by TCEQ and reviewed by us, ''The source's HI [haze index] is *compared to natural conditions* to assess the significance of the source's visibility impact. EPA guidance lists natural conditions ($b_{natural}$) by Class I area in terms of Mm^{-1} (EPA, 2003b) and assumes clean conditions with no anthropogenic or weather interference. The visibility significance metric for evaluating BART sources is the change in deciview (delv) from the source's and natural conditions haze indices.'' [174]

We disagree with the commenter that our use of the ''natural background'' metric is contrary to regulations. As we discuss in a separate response to comment concerning the legality of the extinction and percent extinction metrics, the commenter fails to distinguish between the required metric used to describe overall visibility conditions at a Class I area at a given point in time and the range of metrics that can be used to describe the visibility impairment due to an individual source, group of sources, a state's sources, or some other portion of the visibility impairment at a Class I area. As explained above, it is necessary to consider the visibility benefit of controls on a ''clean'' background basis to assess the full benefit from potential controls.

The use of natural background is also supported by our previous action on North Dakota's regional haze SIP and the associated Eighth Circuit Court decision. The full text of our determination in North Dakota is: [175]

> In addition to evaluating the four statutory factors, North Dakota also considered the visibility impacts associated with the control options for each RP source. However, in modeling visibility impacts, North Dakota used a hybrid cumulative modeling approach that is inappropriate for determining the visibility impact for individual sources. As with the modeling North Dakota conducted for its NO_X BART analysis for MRYS [Milton R. Young Station] Units 1 and 2 and LOS [Leland Olds Station] Unit 2, the approach fails to compare single- source impacts to natural background. While there is no requirement that States, when performing RP analyses, follow the modeling procedures set out in the BART guidelines, or that they consider visibility impacts at all, we find that North Dakota's visibility modeling significantly understates the visibility improvement that would be realized for the control options under consideration. Accordingly, we are disregarding the modeling analysis that North Dakota has used to support its RP determinations for individual sources.

The Eighth Circuit Court's decision affirmed our position that the use of degraded, or dirty background, was not consistent with the CAA. The relevant section of the 8th Circuit Court's decision on this point reads: [176]

> Although the State was free to employ its own visibility model and to consider visibility improvement in its RP

[172] See our FIP TSD, page A–39.

[173] Using existing conditions as the baseline for single source visibility impact determinations would create the following paradox: The dirtier the existing air, the less likely it would be that any control is required. This is true because of the nonlinear nature of visibility impairment. In other words, as a Class I area becomes more polluted, any individual source's contribution to changes in impairment becomes geometrically less. Therefore the more polluted the Class I area would become, the less control would seem to be needed from an individual source. We agree that this kind of calculation would essentially raise the ''cause or contribute'' applicability threshold to a level that would never allow enough emission control to significantly improve visibility. Such a reading would render the visibility provisions meaningless, as EPA and the States would be prevented from assuring ''reasonable progress'' and fulfilling the statutorily-defined goals of the visibility program. Conversely, measuring improvement against clean conditions would ensure reasonable progress toward those clean conditions. 70 FR 39124.

[174] Texas Regional Haze SIP, Appendix 9–5, ''Screening Analysis of Potential BART-Eligible Sources in Texas'' at 2–11, emphasis added.

[175] 76 FR 58627.

[176] *North Dakota* v. *EPA,* 730 F.3d 750, 766 (8th Cir. 2013).

determinations, it was not free to do so in a manner that was inconsistent with the CAA. Because the goal of section 169A is to attain natural visibility conditions in mandatory Class I Federal areas, see 42 U.S.C. 7491(a)(1), and EPA has demonstrated that the visibility model used by the State would serve instead to maintain current degraded conditions, we cannot say that EPA acted in a manner that was arbitrary, capricious, or an abuse of discretion by disapproving the State's RP determination based upon its cumulative source visibility modeling.

The use of natural background conditions to assess visibility benefits of individual controls, as we have done here in this action, is consistent with the goals of the CAA. As to the comment that we adjusted the modeled results by updating the baseline uncontrolled emissions for each unit based on SO_2 emissions data for 2009–2013, this was a necessary step to assess the visibility benefit of controls relative to the visibility impairment due to future anticipated emission levels at these units without the required controls. Comparison of 2018 CENRAP projected emissions to recent actual emissions showed that a number of facilities have actual emissions that are much higher than CENRAP 2018 modeled emissions.[177] For instance, Big Brown, Sandow, and Martin Lake actual emissions were all significantly higher than 2018 CENRAP modeled rates, with Martin Lake having over 90% more SO_2 emissions than projected by CENRAP for 2018. Both Pirkey and Oklaunion had much smaller actual SO_2 emissions than projected. As we discuss in the FIP TSD, we believe that recent actual emissions are more representative of anticipated future emissions at the sources evaluated than the CAIR projections developed in 2006 and adopted by CENRAP. The CENRAP modeling was based on an IPM (Integrated Planning Model) that estimated EGU future emissions in 2018 including reductions for CAIR across the eastern half of the United States. This analysis was conducted in 2006 and projected that Texas would be a purchaser of SO_2 credits, and that not much high level control would be placed on Texas EGU sources. Given the length of time between 2006 when the IPM analysis was conducted, and 2013 when we were conducting this analysis, we had some concern that these projections could be off for the EGUs in Texas. Information available also indicates that SO_2 credits are much cheaper than originally projected, therefore more credits may have been used in lieu of emission reductions. We also weighed the technique that Texas has used in estimating emissions from EGUs for future years (including 2018) in ozone attainment demonstration SIPs in DFW and HGB. For these photochemical modeling analyses with CAMx, Texas has relied upon the recent CEM data that is also included in CAMD's databases in conjunction with information on recently permitted EGUs for estimating the emissions to model for EGUs in Texas in 2018 as these overall EGU emission levels are already near levels projected under CAIR Phase II control such that further emission reductions are doubtful in the absence of some new requirements.

The actual SO_2 allowances for Texas under CSAPR are not much different than the CAIR Cap for Texas, so large additional reductions over current emission levels were not expected. However, because we had earlier projected with IPM that controls for MATS may generate the installation of additional scrubbers in Texas that could potentially result in further SO_2 reductions, we again investigated this possibility. Texas recently submitted comments to us on a more recent IPM projection that was at the time intended by EPA to be part of a new modeling platform for national rule making.[178] In these comments and comments from several EGU owners in Texas, the assertion was that no significant amount of additional SO_2 controls are expected due to compliance with MATS. The comments also pointed out that, as some of our cursory research had also indicated, no large SO_2 control projects were planned at most of the sources we were evaluating. Therefore, based on Texas' recent comments and other information, we concluded considerable uncertainty exists as to whether any further reductions of SO_2 will occur beyond current emission levels as a result of compliance with MATS or CSAPR. Overall this information supports looking at recent actual emissions to represent future emission levels in 2018.

In summary, this adjustment from CENRAP 2018 to the baseline calculated from recent actual emissions was not an ''artificial adjustment'' and was necessary to account for the large difference between specific unit-level emissions in the 2018 CENRAP emissions and a baseline more representative of anticipated future emission levels in 2018. We estimated and presented the estimated visibility benefit of controls based on both the CENRAP 2018 projected emission levels and emission levels consistent with recent actual emissions data. The results considering the 2018 CENRAP emissions baseline were also needed to provide a comparison with the Texas regional haze SIP and an estimate of the change from the 2018 CENRAP modeled reasonable progress goal to a new reasonable progress goal including the controls required in the FIP. The visibility benefit of individual controls calculated based on the CENRAP 2018 emissions baseline represents the additional level of visibility benefit from controlling individual units, consistent with the assumptions/emission projections in the Texas regional haze SIP.

Comment: EPA's methodology to estimate revised reasonable progress goals for Big Bend, the Guadalupe Mountains, and the Wichita Mountains is without precedent and is not supported by the record. The commenters also state that the revised reasonable progress goals are incorrect because they do not account for reductions in Oklahoma emissions.

Response: We disagree with the comment and believe we took a reasonable approach to estimate the change in overall visibility impairment anticipated due to the required controls and provided all calculations for review. We also disagree with the commenter's description of how the states estimated the reasonable progress goals. While our guidance suggests that reasonable progress goals should be established by modeling all existing and reasonable controls, in practice all RPOs including CENRAP completed the modeling early in the process. The 2018 CENRAP modeling was completed before any states had completed their BART and reasonable progress determinations. In many cases, the 2018 projection included an assumption of BART level controls and ''on the book'' controls. Once final BART determinations and reasonable progress determinations were completed, the RPO did not go back and remodel to reassess the reasonable progress goals. In our proposed action in Arkansas,[179] as well as our actions in Arizona [180] and Hawaii,[181] the modeled reasonable progress goals were adjusted based on a methodology of scaling of visibility extinction components in proportion to emission changes. We noted that although we recognize that this method is not refined, it allows us to translate

[177] See Table A.4–2 of the FIP TSD for a comparison of recent actual emissions to CENRAP 2018 projected emission levels.

[178] TCEQ comment letter to EPA on draft modeling platform dated June 24, 2014. '2018 EMP signed.pdf'.

[179] 80 FR 18944, 18997.

[180] 79 FR 52420, 52468.

[181] 77 FR 31692, 31708.

the emission reductions achieved through the FIP into quantitative reasonable progress goals, based on modeling previously performed by the RPOs. However, in this case, our analysis using CAMx modeling and source apportionment, provided a somewhat more refined means to estimate the visibility benefit from specific individual controls on the 20% worst days in 2018. While there is limited precedent for adjusting the RPO calculated reasonable progress goals to account for emission reductions achieved in a FIP or revised SIP, we took a reasonable approach based on the information available. We adjusted each reasonable progress goal established by Texas or Oklahoma for 2018 by the amount of visibility benefit anticipated from all scrubber upgrades estimated by our modeling analysis based on CAMx source apportionment modeling.[182] In estimating the deciview visibility benefit in 2018 compared to the CENRAP modeled 2018 reasonable progress goals, we considered reductions from 2018 CENRAP emissions levels and 2018 ''dirty'' background conditions. We believe that this is a reliable estimate of the amount of visibility benefit anticipated from controls (*e.g.,* 0.14 dv for the Wichita Mountains) beyond the projected 2018 CENRAP reasonable progress goals. We then simply adjusted the reasonable progress goals established by the state by the amount of visibility benefit anticipated from the additional controls.

As discussed above, we adjusted the CENRAP modeled reasonable progress goals to translate the emission reductions required in this FIP for Texas sources into quantitative reasonable progress goals. We note that the CENRAP modeling included an assumption for anticipated BART reductions for Oklahoma sources. We considered the comment concerning consideration of the reductions required by the BART FIP in Oklahoma in setting the 2018 reasonable progress goals and we believe these assumptions are a reasonable approximation of the anticipated BART reductions in Oklahoma at this time, considering the uncertainty of the timing of the reductions for some of the sources and the uncertainty in the final control scenario chosen by the operator to meet the requirements. The required enforceable emission limits in the Oklahoma and Texas FIPs remedy the deficiencies in the SIPs and our finalized reasonable progress goals properly consider the visibility benefits anticipated by those required emission reductions.

Unlike the emission limits that apply to specific reasonable progress sources, the reasonable progress goals are not directly enforceable. Rather, the reasonable progress goals are an analytical tool used by EPA and the states to estimate future visibility conditions and track progress towards the goal of natural visibility conditions.

Comment: EPA's proposal provides no basis for disapproving Texas' and Oklahoma's reasonable progress goals for the 20% best days and fails to provides analysis of the part of the reasonable progress goals addressing the ''best'' days.

Response: We disagree with the comment. Our basis for disapproving the relevant reasonable progress goals for the 20% best days arises, as was noted in our proposal, from our determination that the analysis developed by Texas to evaluate reasonable progress controls was flawed and additional controls are necessary for the first planning period. Finalizing requirements for additional controls, as we now accomplish with our final rule, makes ''visibility on these days better than Texas projects,'' as we noted in our proposal.[183] [184] The submitted reasonable progress goals for the 20% best days did not consider reductions from the reasonable controls, so they cannot be approved. We understand the comment to request a quantitative assessment of the projected visibility conditions for the 20% best days. These calculations have been completed and add to our position that visibility will be better than Texas projects. These numbers, following the same methodology that we employed with the 20% worst days, are summarized in the table provided in the introduction section of the document.

P. Interstate Visibility Transport

We received comments opposing our proposed disapproval of the visibility protection portion of the interstate transport requirements in Texas infrastructure SIP submittals for the ozone, $PM_{2.5}$, NO_2, and SO_2 NAAQS (CAA 110(a)(2)(D)(i)(II)). Among the adverse comments were the following: The requirements for infrastructure SIPs in CAA section 110(a)(2)(D)(i)(II) only contain structural, rather than substantive, requirements. Disapproving Texas' infrastructure SIPs conflicts with the differing deadlines for NAAQS SIP submittals and regional haze SIP submittals. Texas submitted separate SIPs to address the visibility prong of interstate transport for the 1997 ozone, the 2006 $PM_{2.5}$, the 2008 ozone, the 2010 SO_2, and the 2010 NO_2 standards and EPA failed to evaluate these submittals in its proposed disapproval. CAA section 110(a)(2)(D)(i)(II) is pollutant specific, and, because EPA finds that Texas' SIP is inadequate to protect visibility only because it does not contain certain limitations on SO_2 emissions, EPA should not disapprove for the other NAAQS at issue. The CAA's visibility protection requirement is narrower than the requirement for reasonable progress and requires only provisions necessary to prevent interference with control measures included in another state's plan to achieve a visibility standard. The CAA limits EPA's authority to require one state to adopt binding emission limits for the benefit of another state, citing *EME Homer City.*

We disagree with the comments for several reasons. Section 110(a)(2) specifies the *substantive elements* that infrastructure SIP submissions need to address, as appropriate, for EPA approval.[185] EPA has disapproved portions of such SIPs for failure to comply with the interstate visibility transport requirements section 110(a)(2)(D)(i)(II) for various other states. *See* 78 FR 46142, July 30, 2013 (Arizona); 77 FR 14604, March 12, 2012 (Arkansas); 76 FR 52388, August 22, 2011 (New Mexico); 76 FR 81728, December 28, 2011 (Oklahoma). By contrast, in many other SIP actions across the country, we have allowed states to rely on their approved regional haze plan to meet the substantive requirements of the visibility component of section 110(a)(2)(D)(i)(II) because the regional haze plan achieved at least as much emissions reductions as projected by the RPO modeling. *See* 76

[182] As discussed elsewhere in this document, while the required scrubber retrofits will provide for additional visibility improvement at the Class I areas that we consider necessary for reasonable progress towards natural visibility conditions, we do not anticipate these controls to be implemented until after 2018.

[183] 79 FR 74843.

[184] ''No degradation,'' as distinctly needed for the 20% best days, is ensured because added controls do not significantly impact the 20% best days and would serve only to improve visibility on these days. Even so, what we provide as the 20% best day reasonable progress goals for 2018 (*i.e.,* the ''least impaired days'') for Big Bend, Guadalupe Mountains and Wichita Mountains numerically differ from the numbers that Texas had submitted by very small amounts. By the design of 40 CFR 51.308(d)(1), improvements for the most impaired days provide a more vital benchmark for progress that may be made.

[185] *See* September 13, 2013 EPA guidance memo ''Guidance on Infrastructure State Implementation Plan (SIP) Elements under Clean Air Act Sections 110(a)(1) and 110(a)(2)'', *http://www3.epa.gov/airquality/urbanair/sipstatus/docs/Guidance_on_Infrastructure_SIP_Elements_Multipollutant_FINAL_Sept_2013.pdf.*

FR 34608, June 14, 2011 (California); 79 FR 60985, October 9, 2014 (New Mexico); 76 FR 36329, June 22, 2011 (Idaho); and 76 FR 38997, July 5, 2011 (Oregon). We gave limited disapproval to the Texas regional haze SIP based on its reliance on CAIR. CAIR provided limits on emissions of SO_2 and NO_X. SO_2 is a precursor for $PM_{2.5}$. NO_X is a precursor for ozone and for $PM_{2.5}$. NO_2 is a component of NO_X. With CAIR no longer in effect, Texas may not rely on its regional haze SIP to ensure that emissions from Texas do not interfere with measures to protect visibility in nearby states. We recognize that CAA section 110(a)(2)(D)(i)(II) is pollutant specific; nevertheless, ozone, $PM_{2.5}$, NO_2, and SO_2 or their precursors could interfere with visibility protection. Because Texas has not demonstrated that its SIP submittals ensure that Texas emissions would not interfere with measures required to be included in the SIP for any other state to protect visibility, we are disapproving these SIP submittals.

As discussed in this action, the D.C. Circuit Court in *EME Homer City* recently issued a decision upholding CSAPR but remanding without vacating a number of the Rule's state emissions budgets, including those for Texas. The CSAPR remand did not affect our reasons for proposing to disapprove portions of Texas' SIP submittals that address CAA provisions for prohibiting air pollutant emissions from interfering with measures required to protect visibility in any other state for the 1997 $PM_{2.5,}$ 2006 $PM_{2.5}$, 1997 ozone, 2008 ozone, 2010 NO_2, and 2010 SO_2 NAAQS. However, the remand did affect our proposal to rely on CSAPR to help address our FIP obligation for interstate transport of air pollution and visibility protection. Therefore, today's action does not finalize the portion of our proposed FIP that would have relied on CSAPR to satisfy Texas' visibility transport obligations with respect to the aforementioned NAAQS. We will address the visibility transport requirements for Texas in a future rulemaking once the issues surrounding the partial remand are resolved.

Q. Disapproval of the Oklahoma and Texas Reasonable Progress Goals

We received numerous comments on our proposed disapproval of the reasonable progress goals selected by Texas and Oklahoma for their respective Class I areas and the recalculated reasonable progress goals we proposed. Some comments were in support of our proposed disapproval of the state's reasonable progress goals and our proposed recalculated reasonable progress goals. However, a majority of the comments raised objections to our proposed action on the reasonable progress goals. These commenters raised numerous issues in support of their objections to our proposal, including that recent monitoring data from IMPROVE monitors indicates the Class I areas are already meeting the new reasonable progress goals we proposed without the need for the additional controls we proposed, that there have been significant SO_2 and NO_X emissions reductions in Texas since the baseline period, that our proposed disapproval of the state's reasonable progress goals had no technical or legal basis, and that we inappropriately recalculated the new reasonable progress goals we proposed.

Below we present a summary of our responses to the more significant comments we received that relate to our proposed action on the reasonable progress goals for Texas and Oklahoma Class I areas. See our RTC document for a more in-depth presentation of the comments we received and our responses to them.

Comment: Our proposed disapproval of Oklahoma's reasonable progress goals for the Wichita Mountains is proper and required by the CAA, as the record is clear that control measures satisfying the four reasonable progress factors are available for some of the largest sources of visibility impairment at the Wichita Mountains. Our proposed finding that Oklahoma and Texas did not adequately consult with each other regarding the impact of Texas sources on Oklahoma's Class I area is also proper because in order to engage in meaningful consultation, an upwind state such as Texas must provide impacted states with sufficient technical information detailing the visibility impacts of individual sources and the feasibility and cost-effectiveness of control measures on those sources. A downwind state such as Oklahoma should request the adequate information when it is not provided by the upwind state and must take a hard look at this information and request that upwind states require the control measures that satisfy the four factors laid out in the statute for making reasonable progress. We support the EPA's conclusions as to what constitutes a proper and meaningful consultation under the regional haze program and support the EPA's proposed disapproval of Oklahoma's reasonable progress goals and finding that the consultations between Oklahoma and Texas were inadequate.

Response: We appreciate the commenter's support of our interpretation of what constitutes an adequate consultation that satisfies the Regional Haze Rule requirements. We also appreciate the commenter's support of our proposed disapproval of Oklahoma's reasonable progress goals for the Wichita Mountains and our finding that the consultations between Oklahoma and Texas to address the impacts of Texas sources on the Wichita Mountains were not adequate and did not meet the regional haze requirements. We are finalizing as proposed our disapproval of several of the requirements with regard to Oklahoma's establishing of reasonable progress goals for the Wichita Mountains, including our finding that the consultations between Texas and Oklahoma to address Texas' impacts on the Wichita Mountains were not adequate and did not meet the Regional Haze Rule requirements.

Comment: EPA should withdraw its proposed FIP and instead fully approve the regional haze SIPs submitted by Texas and Oklahoma because the SIP submitted by Texas fully complies with the statute and all regulatory standards and therefore there is no legal or technical basis for EPA's proposed FIP. On every level, EPA's proposal exceeds the agency's authority under the CAA and EPA's regional haze regulations.

Response: We disagree with the commenter that there is no legal or technical basis for our proposed FIP, that the proposed FIP exceeds our authority under the CAA and the regional haze regulations, and that the SIP submitted by Texas fully complies with the statute and regulatory requirements. The CAA and § 51.308(d)(1) provide how to determine what constitutes reasonable progress for each planning period and specify the requirements related to establishment of the reasonable progress goals for each Class I area. In particular, both the CAA and the Regional Haze Rule require states to consider four factors when setting reasonable progress goals: The costs of compliance, time necessary for compliance, energy and non-air quality environmental impacts, and the remaining useful life of potentially affected sources.[186] The Regional Haze Rule also requires that in establishing the reasonable progress goals, states must consider the uniform rate of progress and the emission reduction measures needed to achieve it for the period covered by the implementation plan. In addition, because the reasonable progress goals selected by Texas and Oklahoma provide for a rate of improvement slower than the

[186] CAA Section 169A(g)(1), 42 U.S.C. 7491(g)(1). 40 CFR 51.308(d)(1)(i)(A).

uniform rate of progress, the Regional Haze Rule requires the states to demonstrate why their reasonable progress goals are reasonable and why a rate of progress leading to natural visibility conditions by 2064 is not reasonable.[187] As discussed in more detail in our proposal and in the RTC document associated with this final action, Texas did not satisfy several of the requirements at § 51.308(d)(1) with regard to setting reasonable progress goals for its own Class I areas, most notably the requirement to reasonably consider the four statutory reasonable progress factors and the requirement to adequately consider the emission reduction measures needed to meet the uniform rate of progress. Texas also did not satisfy the consultation requirements at § 51.308(d)(3)(i) to address its impacts on the Wichita Mountains. Oklahoma also did not satisfy certain requirements under § 51.308(d)(1) with regard to setting reasonable progress goals for the Wichita Mountains, including the requirement to adequately consult with other states that may reasonably be anticipated to cause or contribute to visibility impairment at the Wichita Mountains and the requirement to adequately consider the emission reduction measures needed to meet the uniform rate of progress. Therefore, we disagree that the Texas and Oklahoma SIPs fully comply with the statutory and regulatory requirements and that our FIP exceeds our authority under the CAA. We are finalizing our proposed disapproval of Texas' and Oklahoma's reasonable progress goals and the controls we proposed under reasonable progress for sources in Texas.

Comment: EPA does not take issue with Oklahoma's four-factor analysis, but nevertheless proposes to reset Oklahoma's reasonable progress goals based on its reasonable progress analysis for Texas sources. EPA also finds it necessary to disapprove Oklahoma's reasonable progress goals because they did not include the emission reductions from the Oklahoma SO_2 BART FIP and the revised BART SIP for the AEP units that were subsequently promulgated. However, EPA's proposed SIP does not correct this error either.

Response: The comment that we disapproved the reasonable progress goals for the Wichita Mountains because they do not include the emission reductions from the SO_2 BART FIP and the revised BART SIP for the AEP units that have subsequently been promulgated is taken out of context and does not fully capture the rationale for our disapproval. We are disapproving the reasonable progress goals for the Wichita Mountains because they do not account for emission reductions from reasonable measures at Texas sources. We stated in the proposal that the reasonable progress goals selected by Oklahoma for the Wichita Mountains do not include the level of reductions necessary to meet the requirements under 40 CFR 51.308(e) for BART. We further explain that ''BART is a component of developing the reasonable progress goals, and the reasonable progress goals are inadequate because BART controls were not adequately considered. We note this deficiency is addressed by our Oklahoma BART FIP and the revised Oklahoma BART SIP.'' [188] The visibility modeling developed for CENRAP and used by Oklahoma in support of its SIP revision submittal assumed SO_2 reductions from the six BART sources that Oklahoma subsequently did not secure when making its BART determinations for these sources. We believe that the BART limits in our Oklahoma BART FIP [189] have adequately addressed the deficiency. We also provide in our proposal additional reasons for disapproving the reasonable progress goals, stating ''Oklahoma's consultations with Texas were flawed, which prevented Oklahoma from adequately developing its reasonable progress goals for the Wichita Mountains,'' and, because Oklahoma's consultations with Texas were flawed, Oklahoma did not adequately demonstrate that the reasonable progress goals it established were reasonable based on the four statutory factors under § 51.308(d)(1)(ii).[190] Comments regarding how we calculated the reasonable progress goals for the Wichita Mountains, Big Bend, or the Guadalupe Mountains, and our consideration of emission reductions from BART requirements in Oklahoma are addressed in a separate response to comment.

Comment: EPA's proposed disapproval of Texas' reasonable progress goals and its substitution with new reasonable progress goals in the proposed FIP is based on EPA's flawed interpretation of what the CAA requires for ''reasonable progress goals.'' This action is based on the EPA's conclusion that ''reasonable progress'' must be determined based on source-specific cost of controls even though such a requirement did not exist in the statute, the Regional Haze Rule, or the guidance available in 2009. The Texas 2009 regional haze SIP established reasonable progress goals for both Big Bend and the Guadalupe Mountains that provide for visibility improvement for the most impaired days over the period of the SIP and ensure no degradation in visibility for the least impaired days over the same period. The EPA agrees the SIP meets these requirements and also agrees that the TCEQ considered the four statutory factors in establishing the reasonable progress goals for its Class I areas in accordance with the Regional Haze Rule. Furthermore, the four statutory factors in and of themselves do not determine the reasonableness of the goals for the planning period. The Regional Haze Rule, in 40 CFR 51.308(d)(1)(iii), requires the EPA to evaluate whether the state's goal for visibility improvement provides for reasonable progress based on a demonstration of which the four statutory factors are only one element. Therefore, EPA's proposed disapproval of Texas' reasonable progress goals and its proposed new reasonable progress goals is flawed.

Response: We disagree that our proposed disapproval of Texas' reasonable progress goals is based on a flawed interpretation of what the CAA requires for reasonable progress goals. As we discuss in our responses to other similar comments, we believe that our evaluation of cost, including visibility benefits, on a source-specific basis was an appropriate and reasonable interpretation of the analysis required in this instance, in order to determine what, if any, level of control for Texas sources constituted reasonable progress for this planning period.

We agree that § 51.308(d)(1) requires more than just the consideration of the four factors in the establishment of the reasonable progress goals. Also, although we agree Texas conducted an evaluation of the four reasonable progress factors, we determined that that evaluation was flawed. Texas did not fully satisfy the requirements under § 51.308(d)(1) related to the evaluation of the four reasonable progress factors and establishment of the reasonable progress goals for the two Texas Class I areas. We note that § 51.308(d)(1)(iii) provides that in determining whether the State's goal for visibility improvement provides for reasonable progress towards natural visibility conditions, the Administrator will evaluate the demonstrations developed by the State pursuant to paragraphs (d)(1)(i) and (ii). Thus, we are specifically directed to judge the quality of a state's submission of these key parts

[187] 40 CFR 51.308(d)(1)(ii).

[188] 79 FR 74871, 74872.

[189] 76 FR 81728.

[190] 79 FR 74872.

of its reasonable progress goals development, which we found to be flawed. In particular, as we discussed in detail in our proposal, we disagree with the set of potential controls identified by Texas and how it analyzed and weighed the four reasonable progress factors under § 51.308(d)(1)(i)(A) [191] and we further proposed to disapprove Texas' reasonable progress goals under § 51.308(d)(1)(ii).[192] For the reasons given in the proposal and affirmed in this final action, we cannot approve Texas' reasonable progress goals. In this action, we are finalizing our disapproval of Texas' reasonable progress goals for Big Bend and the Guadalupe Mountains and we are establishing new reasonable progress goals for these Class I areas, as discussed in our proposal.

Comment: EPA fails to take into consideration the TCEQ's 2014 Five-Year Regional Haze SIP Revision or the effects of early action or emission reduction accomplished or to be accomplished by other EPA programs before imposing additional requirements beyond the state submitted SIPs. Considering that the visibility improvements of these programs have not yet been quantified, and the gradual progress anticipated in establishing such a long-term goal, EPA should be patient and not take such aggressive action in overriding reasonable state SIPs and imposing additional controls.

Response: We stated in our proposal that the TCEQ submitted the first five-year report in March 2014, but we are not including our analysis of that SIP revision within this action.[193] The five-year progress report is a requirement that is separate from the regional haze SIP required for the first planning period, and it has separate content and criteria for us to review. We therefore believe we are not obligated to consider or take action on the five-year progress report at the same time we take action on the regional haze SIP for the first planning period. Even so, we acknowledge that recent monitoring data from IMPROVE monitors indicate that the more recent five-year average measurements of visibility extinction at Texas and Oklahoma Class I areas on the 20% worst days contained in the progress report are lower (*i.e.,* indicate better visibility conditions) than the numerical reasonable progress goals we are establishing for these Class I areas. This issue is addressed in detail elsewhere in this final action and in the RTC document.

We disagree with the commenter's contention that we should not impose additional controls on Texas sources and instead approve the Texas regional haze SIP and the remaining portion of the Oklahoma regional haze SIP because there may be potential visibility improvements that have not yet been quantified, resulting from early actions and emission reductions accomplished or expected to be accomplished through other EPA programs. If it is determined based on the demonstrations developed pursuant to § 51.308(d)(1)(i) and (ii) that there are reasonable and cost-effective controls available that would provide for reasonable progress, the statute and regional haze regulations do not allow for a delay in requiring these controls to allow time for the quantification and consideration of possible future visibility improvements. Therefore, we are finalizing our proposed disapproval of Texas' and Oklahoma's reasonable progress goals and are finalizing the control requirements we proposed for Texas sources under the reasonable progress and long-term strategy reasonable progress requirements.

Comment: The regional haze program tasks states with determining what is reasonable progress toward elimination of man-made visibility impairment, along with specific progress milestones (10-year planning and SIP revisions, with program reviews in the middle of the 10-year planning periods). The regional haze program contemplates gradual visibility improvements along a ''glide path'' that considers the 2064 goal, and does not require immediate reductions that exceed ''reasonable progress'' as determined by the state based on the four statutory factors. Thus, it neither requires nor authorizes the frontloading of extensive control requirements.

Response: The commenter's contention concerning reasonable progress is premised on the assumption that the emissions reductions that are part of the state's long-term strategy and upon which its reasonable progress goals are based do in fact constitute reasonable progress. The determination of what constitutes reasonable progress must be made pursuant to § 51.308(d)(1). Based on its analyses under § 51.308(d)(1), a state (or EPA in the context of a FIP) may determine that a greater or lesser amount of visibility improvement than what is needed to get on the glide path is what constitutes reasonable progress.[194] As discussed in our proposal and within this action, we disagree with the set of potential controls identified by the TCEQ as having the greatest impact on visibility on the three Class I areas and how it analyzed and weighed the four reasonable progress factors in a number of key areas.[195] Therefore, we proposed to disapprove Texas' reasonable progress goals for its Class I areas and conducted our own analysis of the four reasonable progress factors to fill in the regulatory gap that would be created by our disapproval action. We are replacing Texas' flawed reasonable progress analysis with our own and are finalizing the cost-effective reasonable progress controls we proposed on the small number of Texas point sources that have the greatest visibility impacts on the Class I areas of interest.

Comment: Texas' four-factor analysis and its reasonable progress goals were reasonable and within the state's broad discretion, and are supported by recent monitoring data showing the reasonable progress goals will be met for Oklahoma and Texas Class I areas without the additional controls EPA proposed for Texas sources. The most recent five-year (2009–2013) averages of visibility monitoring data from IMPROVE monitors indicates that visibility impairment at the Guadalupe Mountains, Big Bend, and the Wichita Mountains, are lower than both the 2018 reasonable progress goals proposed by the states and the more stringent 2018 reasonable progress goals proposed by EPA. The Texas five-year regional haze progress report issued in 2014 includes a projection of further reductions of haze-forming SO_2 and NO_X emissions from point sources through 2018. Therefore, the commenter concludes that it is expected that visibility improvements observed through 2013 for Big Bend, the Guadalupe Mountains, and the Wichita Mountains will continue and that the 2018 reasonable progress goals that EPA proposes will be met without the further emission controls EPA proposes. These current data also show that Wichita Mountains is projected to meet the EPA approved uniform rate of progress for Oklahoma, and the Guadalupe Mountains is projected to meet the EPA-proposed uniform rate of progress by 2018, without the emission controls that EPA is proposing. Yet EPA ignores these actual conditions in developing its reasonable progress goals and in concluding that its reasonable progress goals are more reasonable. EPA has no authority to require further controls from Texas sources and should

[191] 79 FR 74838.

[192] 79 FR 74843.

[193] 79 FR 74864.

[194] 64 FR 35732.

[195] 79 FR 74838.

withdraw its FIP and approve the Texas SIP.

Response: These comments are predicated on two false tests: (1) If a Class I area meets its uniform rate of progress, or (2) if subsequent monitoring shows a Class I area meets its reasonable progress goals, it is automatically relieved of any obligation to address the reasonable progress and long-term strategy requirements in § 51.308(d)(1) and (3).

We discuss elsewhere in this final action that, while we agree that the Regional Haze Rule requires states to consider the uniform rate of improvement in visibility when formulating reasonable progress goals, we disagree that a state's consideration of the uniform rate of progress and establishment of reasonable progress goals that provide for a slightly greater rate of improvement in visibility than would be needed to attain the uniform rate of progress is all that is needed to satisfy the reasonable progress goal requirements in the Regional Haze Rule. We also disagree that the Regional Haze Rule requires additional analysis only when a state establishes reasonable progress goals that provide for a slower rate of improvement than the uniform rate of progress. Even when recent data from IMPROVE monitors indicate that visibility conditions in the Class I area are better than the established reasonable progress goals and/or that the area may be projected to meet the uniform rate of progress by 2018, the state must still address the requirements under § 51.308(d)(1) and (d)(3)(i) in evaluating controls for additional sources and in establishing reasonable progress goals for its Class I areas.

With regard to the assertion that Texas' five-year regional haze progress report projects SO_2 and NO_X emissions from point sources to continue to decline through 2018 (with corresponding visibility improvement trends at the three Class I areas), Texas' five-year regional haze progress report is pending evaluation as a SIP revision, and we intend to take action on it in a future rulemaking. We note that the portion of the Texas' five-year regional haze progress report referred to by the commenters [196] compares actual annual emissions from 2002 through 2011 against a linear change between 2002 actual emissions and the 2018 CENRAP modeled emissions and concludes that emissions from 2002 to 2011 have trended downward better than or as predicted in the CENRAP modeling projections. However, we noted in our proposal that the CENRAP projected visibility impacts in 2018 from Texas point sources, and EGUs in particular, are significant. As noted in our proposed rulemaking, based on information provided by the TCEQ in materials other than the progress report, we do not expect large additional emission reductions of SO_2 in Texas between 2013 and 2018 under Federal programs and the SIP as submitted.[197] We have not seen evidence in support of something different. Furthermore, emissions from some of the Texas EGUs that we are requiring controls for and that impact visibility at the three Class I areas the most, are still above the emission level projected in the 2018 CENRAP modeling. We are not aware of any upcoming controls or changes in operation to suggest that future actual emissions at these specific sources will decrease to those predicted levels.

We also remind the commenters that even with the controls we are requiring for Texas EGUs under our FIP, additional reductions would be needed for visibility conditions to meet or exceed every uniform rate of progress goal in 2018 as calculated by us in our proposal. For example, current conditions at the Wichita Mountains (based on 2009–2013) is 21.2 dv. Additional reductions would be needed for the area to meet the uniform rate of progress goal of 20.01 dv in 2018.

Comment: The SO_2 emissions from Luminant's units, for which EPA proposed controls, have steadily trended downward over the first planning period, further underscoring the effectiveness of the measures relied on in Texas' SIP and the unreasonableness of EPA's proposed FIP. From 2009 to 2014, SO_2 emissions from Luminant's Big Brown, Martin Lake, Monticello, and Sandow Unit 4 were reduced by 27%. The SO_2 emissions for the first quarter of 2015 are sharply lower—approximately 57% lower than the first quarter of 2009 and about 44% lower than the first quarter of 2014. The data unequivocally show that SO_2 emissions at Luminant's units are trending down, and thus there is no basis for EPA's proposal.

Response: The annual and quarterly SO_2 emissions data for Luminant's facilities for 2009–2015 demonstrate that, although there has been an overall downward trend in annual SO_2 emissions during this time period, there has not been a downward trend in SO_2 emissions during Quarter 3 for the six-year period for which full data are available. Except for the years 2011 and 2012, when total SO_2 emissions for Quarter 3 were either sizably higher or lower compared to the other years during the 2009–2014 time period, emissions for Quarter 3 remained relatively unchanged during this six year period. This is significant because Quarter 3 corresponds to the summer months and many of the 20% worst days, which is what the reasonable progress goals are based on, typically occur during the summer months. Emissions reductions during the fall and/or winter months reduce annual emissions, but will not lead to improved visibility during the 20% worst days. The majority of the decline in total annual SO_2 emissions from the Luminant sources is driven by seasonal operation of Monticello units 1 and 2.[198] Furthermore, as we discuss in more detail elsewhere, we do not anticipate any significant reductions at these sources in the near future, and information provided by Texas indicates it agrees.[199] We also note, as discussed above, NO_X emissions for many of these units were updated in our modeling to better reflect the recent actual emissions. Therefore, we disagree that the observed trend in SO_2 emissions at Luminant's units in recent years demonstrates that there is no basis for EPA's proposal.

Comment: To the extent Texas and industry are arguing that the current visibility conditions meet the reasonable progress goals EPA is proposing, that is largely a result of the fact that EPA has not updated the majority of the 2018 projections that CENRAP and Texas relied on. Goals based on the controls EPA has proposed and also on more updated projections would likely be lower than the reasonable progress goals EPA is proposing. The recent improvement is due to a variety of factors, which EPA discusses in the proposed rule, 79 FR 74843, most of which are not enforceable limitations or are beyond the state's control and, therefore, may be temporary. The argument made by Texas and industry does not show that the proposed controls themselves are unnecessary or unreasonable. Further, the argument by Texas and industry reflects a misunderstanding of how reasonable progress goals are set. Reasonable progress goals are set to reflect controls that are reasonable; controls are not required in order to meet pre-set reasonable progress goals. Congress

[196] 2014 Texas Five-Year Reasonable Progress Report, p 4–10, figure 4–2.

[197] TCEQ comment letter to EPA on draft modeling platform dated June 24, 2014.

[198] See Luminant CAMD emissions.xlsx in the docket for this action.

[199] See TCEQ comment letter to EPA on draft modeling platform dated June 24, 2014 available in the docket for this action.

defined reasonable progress as the amount of progress that could be made after consideration of four factors. 42 U.S.C. 7491(g)(1). After the four-factor analysis defines reasonable progress, each haze SIP must include the enforceable measures necessary to make reasonable progress. *Id.* section 7491(b)(2). The reasonable progress goal for 2018 is calculated as the baseline visibility condition minus the amount of reasonable progress (which is established based on consideration of the four statutory factors).

Response: We generally agree with the commenter and agree that these comments provide support of our FIP.

Comment: EPA fails to even consider the four statutory factors with respect to non-BART sources in Oklahoma that are impacting visibility at the Wichita Mountains and to determine whether all existing and reasonable controls on Oklahoma sources, including BART, are sufficient to attain a reasonable rate of progress for the Wichita Mountains for the first planning period. EPA does not explain why it failed to conduct the modeling and perform the statutory analysis that it would expect a state to conduct in determining a reasonable progress goal.

EPA failed to consider the visibility benefit from imposing the same levels of control on these sources as it is proposing to impose on the targeted Texas sources. EPA is applying a different standard to Texas sources than it is to sources in other states. EPA's ''reset'' reasonable progress goal is unlawful; and EPA has no basis for disapproving Oklahoma's reasonable progress goal, no basis for issuing a FIP with a substitute reasonable progress goal for the Wichita Mountains, no basis for disapproving Texas' long-term strategy, and no basis for imposing additional SO_2 limits on Texas sources.

Response: We disapproved Texas' long-term strategy because it was technically flawed and we were under a statutory obligation to evaluate Texas sources and propose a FIP for those facilities where we determined that reasonable emission controls could be installed for improved visibility benefit.

Oklahoma's lack of adequate information from Texas prevented it from properly developing its reasonable progress goals for the Wichita Mountains, and we disagree that we are applying a different standard to Texas sources than we are sources in other states. We note that we were not required to do a four-factor analysis for Oklahoma's non-BART sources because, as discussed in our proposal [200] and OK TSD, we reviewed Oklahoma's four-factor analysis for Oklahoma's non-BART sources, and agree with Oklahoma that it has demonstrated that it is not reasonable to require additional emission reductions for those sources for this planning period. We agree with Oklahoma's reasonable progress analysis for sources within Oklahoma and its assessment that the Wichita Mountains would not meet the uniform rate of progress without significant reductions from Texas sources. Because the reasonable progress goals Oklahoma established for the Wichita Mountains does not include appropriate consideration of reductions at Texas sources, we were required by the Regional Haze Rule to disapprove Oklahoma's reasonable progress goals. We recalculate new reasonable progress goals for 2018 for the Wichita Mountains based on the results of our technical analysis that additional controls at Texas sources were reasonable to meet the reasonable progress/long-term strategy requirement for reasonable progress and accounting for the visibility benefit of the required controls anticipated to be in place by 2018.

R. International Emissions

Comment: EPA acknowledged it failed to account for international sources of emissions, which Texas cannot control. This renders its proposal ineffective in improving visibility to meet the uniform rate of progress and 2064 goal. EPA's action would require over-control of Texas sources to compensate for international emissions. If the TCEQ cannot meet the glide path without ''large emission reductions from international sources,'' it is unreasonable for EPA to require additional controls from Texas without making any effort to seek emissions reductions from international sources.

Response: We agree with the commenters that international emissions significantly impact visibility conditions at Big Bend and the Guadalupe Mountains. However, as we discussed in the preamble to the Regional Haze Rule, ''the States should not consider the presence of emissions from foreign sources as a reason not to strive to ensure reasonable progress in reducing any visibility impairment caused by sources located within their jurisdiction.'' While the goal of the regional haze program is to restore natural visibility conditions at Class I areas by 2064, the rule requires only that reasonable progress be made towards the goal during each planning period, and in cases where it is not reasonable to meet the rate of progress needed to attain the goal in 2064, that the state demonstrate that it is not reasonable and that the selected rate of progress is reasonable for that planning period. We recognize that it may not be possible to attain the goal by 2064, or at all, because of impacts from new or persistent international emissions sources or impacts from sources where reasonable controls are not available. However, states are still required to demonstrate that they are establishing a reasonable rate of progress that includes implementation of reasonable measures within the state to address visibility impairment in an effort to make progress towards the natural visibility goal during each planning period. Nothing in the Regional Haze Rule or our FIP is calculated to hold Texas accountable for emissions from Mexico. We agree those international emissions should be addressed to achieve natural visibility, but our agreement on this point does not in any way relieve Texas of the obligation to make reasonable progress, including through controls on its own sources, and particularly through the emissions addressed with controls through our FIP.

Comment: EPA is not doing enough to seek emission reductions from international sources. Commenters noted that we committed to address international emissions in our 1999 Regional Haze Rule when we stated, ''EPA will work with the governments of Canada and Mexico to seek cooperative solutions on transboundary pollution problems (64 FR 35714, 35736),'' but have thus far done little.

Response: We acknowledge that Texas requested in its SIP that we initiate and pursue Federal efforts to reduce impacts from international transport. There are efforts underway to address public health problems related to air emissions along the United States-Mexico border. Given that emissions contributing to health effects and those contributing to visibility impairment are generally the same, the border studies and continuing emissions inventory development will aid in identifying solutions that we would expect to also address visibility impairment. The Border 2020 program aims to, among other things, reduce air pollution to help meet the NAAQS and reduce emission through the use of energy efficiency and/or alternative/renewable energy projects. We expect that recent commitments from Mexico to reduce its carbon dioxide and black carbon emissions will have ancillary benefits to improve visibility at Class I areas in the future.

Comment: It is not possible for Texas to achieve the uniform rate of progress because of the contribution from

[200] 79 FR 74871.

Mexico. An analysis shows that if every point source in Texas were shut down, it would have only a marginal impact on visibility in the Guadalupe Mountains. Further, the exclusion of all of Texas and other United States elevated point sources resulted in a modeled haze index value of 14.88 dv, meaning that Mexican sources and natural contributions are projected to account for 92%, or all but 1.48 deciviews, of visibility impairment in the Guadalupe Mountains.

Response: The commenter erroneously overstates the size of the visibility impacts from Mexico relative to Texas. As we stated in our proposal, efforts to meet the goal of natural visibility by 2064 ''would require further emissions reductions *not only within Texas,* but also large emission reductions from international sources'' (emphasis added).[201] The commenter's analysis fails to account for impacts from mobile and area sources within Texas and other states, and fails to differentiate Mexican sources from other international sources. The analysis also fails to consider that deciviews are a logarithmic function of extinction, resulting in the underestimation of the percent contribution from Texas and U.S. point sources. Overall impacts from all sources in Texas are larger than all sources in Mexico and the boundary conditions (which represent external sources) combined. As we discuss in our proposal and elsewhere in our response to comments, Texas and we agreed that it was reasonable to focus on impacts from point sources for this planning period. The visibility impairment from Texas point sources is significant, and as our analysis shows, a significant portion of this impairment can be addressed by controlling a small number of sources. Controls on just four units at Tolk and Big Brown are estimated to reduce visibility impairment due to all Texas point sources at the Guadalupe Mountains by approximately 13%. All required controls combined are estimated to reduce visibility impairment at the Guadalupe Mountains from all Texas point sources by approximately 22%.

Comment: CCP (through its contractor, AECOM) stated that back trajectories for 2011–2013 indicate that approximately 77% of the 20% worst day trajectories at the Guadalupe Mountains passed through Mexico. For Big Bend, this percentage increases to about 96%. Mexican point sources, particularly Carbon I and Carbon II, are only about 230 km away from Big Bend, while the nearest Texas facility with a proposed new emission limit is about 500 km away. Emissions from these large power plants are noteworthy—Carbon II emitted 162,329 tons of SO_2 in 2008, according to the draft EPA 2011 modeling platform, which is an increase from 1997 (129,341 tons at Carbon II). In addition to international point sources, smoke plumes from agricultural fires in Central America travel northward into the U.S. and contribute to haze. Modeling shows that the sources that cause haze in Big Bend and the Guadalupe Mountains are rarely in the area where most of the emission sources targeted by EPA are located. The effect of controlling emissions at a plant like Big Brown would be dwarfed by the massive impact of the international emissions. CCP reasons that since the emissions from its facility, Coleto Creek, are even lower than Big Brown's emissions, it would have a smaller impact. This component of haze must be accounted for in regional haze SIPs in the development of reasonable progress goals and/or natural conditions because these emissions from agricultural burns, power plants, or wildfires from international sources are beyond the jurisdiction of state agencies.

Response: We have reviewed the back trajectories provided and have noted several flaws in the analysis and conclusions. In general, back trajectories are tools that may be used for analyzing potential upwind contribution areas to a monitored value of concern. In this case we generally agree that many back trajectories do pass through upwind areas in Mexico for the 20% worst monitored days at Big Bend and the Guadalupe Mountains. What the commenter fails to point out or conclude is that a very large percentage of the trajectories that the commenter attributes to Mexico also cross over or near areas of Texas, thus indicating that Texas is also a potential contributor to the high monitored values at Big Bend and the Guadalupe Mountains. We do agree that impacts from Mexico are significant and must be addressed to achieve natural visibility, but our agreement on this point does not in any way relieve Texas of the obligation to make reasonable progress, including through controls on its own sources, and particularly through the emissions addressed with controls through our FIP. Past analyses have indicated that impacts from Texas on Big Bend and the Guadalupe Mountains are as large as impacts from Mexico and that reducing impacts from sources in Texas is also necessary to achieve natural visibility.[202] We disagree that impacts from Coleto Creek would be smaller than impacts from Big Brown because it has fewer emissions. The comment failed to consider the location of the source and the meteorology/transport conditions. Coleto Creek is closer to Big Bend and our source apportionment modeling shows that the one unit at Coleto Creek has a larger impact on the 20% worst days at Big Bend than the impact from the two units at Big Brown.

The comment presents a comparison between the visibility impact from one facility *to the visibility impact from all sources around the world that lie outside of the modeling domain,* including long range transport from fires, windblown dust, and significant anthropogenic emissions. The commenter states that annual average visibility impairment from Big Brown is approximately 10% of the annual average contribution from those sources captured by the boundary conditions. This is a significant fraction of the total visibility impairment that can be addressed through the installation of controls on merely two emission units. We also note that visibility impairment on the 20% worst days at each Class I area from Big Brown is larger; and as can be seen by the data submitted by the commenter, on some days, the visibility impairment due to Big Brown's emissions approaches or exceeds that from all emissions sources captured by the boundary conditions. For the Wichita Mountains, controls on just Big Brown address almost 12% of the total visibility impairment due to Texas point sources and 1.63% of the total visibility impairment from all sources. In summary, the visibility impairment from the individual sources analyzed is significant, and controls on these sources provide for meaningful progress towards the goal of natural visibility conditions at one or more Class I areas. This is not inconsistent with the understanding that significant impacts from international emissions and other sources exist and should also be addressed.

Lastly, we agree with CCP that the sources it cites, Carbon I and Carbon II, are responsible for significant levels of pollution. Carbon I is a 1,200 MW power plant and Carbon II is a 1,400 MW coal-fired power plant. These two power plants, less than 1.5 miles apart, are less than 20 miles from the U.S.-Mexico border. Together, these power plants comprise one of the largest

[201] 79 FR 74843.

[202] See FIP TSD pages A–30–32 and A–65–66 and Conclusions of BRAVO study source apportionment techniques (*TX166.017 BravoFactSheet20040915.pdf and BRAVOFinalReportCIRA.pdf*).

uncontrolled sources of SO_2 and NO_X in North America.[203] It has been demonstrated for some time that they are significant contributors to visibility impairment at Big Bend.[204] However, addressing international emissions can be complex. For instance, Texas has recently issued water discharge and mining permits to a coal mine in Maverick County, near the Texas border town of Eagle Pass, to allow the Mexican company Dos Republicas to begin mining coal that will reportedly be sent to these facilities.[205] Prior to our delegation of the National Discharge Elimination System (NPDES) permitting authority to Texas, we issued a NPDES permit for the operation of this mine, and in the process issued an Environmental Impact Statement (EIS).[206] In our EIS, we stated that ''. . . EPA does not have the authority to prohibit export of U.S. resources which will cause the country environmental harm . . . EPA believes that the U.S. policy should be to take actions which will generate the investment capital needed to directly solve the Carbon I/II problem'' [207] Subsequent to that, we attempted to work with the government of Mexico specifically on the problem of installing controls on these sources through a technical work group composed of EPA and SEMARNAP (now SEMARNAT, the Mexican Environment and Natural Resources Secretariat) staff. Unfortunately, these discussions did not result in any control of Carbon I and II. However, EPA is committed to explore opportunities for further discussions with Mexico concerning this subject.

S. Grid Reliability

Comment: The TCEQ recommended that we withdraw the proposed FIP; however, if we do finalize the FIP, it believed we should include an electric reliability safety valve provision in the final rule. The TCEQ stated that we have not evaluated any potential impacts of our proposed FIP to reliability and prices of electricity in Texas. It included a 2014 ERCOT study of the impacts that environmental regulations have in the ERCOT Region. While the ERCOT report included a number of other environmental regulations, such as the MATS rule, Clean Power Plan, and CSAPR, ERCOT also included our proposed regional haze FIP for Texas in its analysis. The TCEQ incorporated the ERCOT report into its comments and encouraged us to consider its findings.

Response: First, we note that controls achieving the level of control that we are requiring are highly cost-effective, are in wide use in the industry, and thus should not require a source to shut down to comply. In response to the TCEQ's comments, however, we contracted with Synapse Energy Economics, Inc., a nationally recognized firm with particular expertise in the subject area. (Synapse).[208] Synapse assessed the information in the ERCOT report and we reproduce its findings below:

1. ERCOT's perspective of market operations is short-sighted. ERCOT raises concerns that reliability could be impacted if numerous coal units choose to retire simultaneously with little notice to either ERCOT or other market participants. Unlike other competitive market regions, ERCOT's rules do not require meaningful notice. ERCOT's charge as a reliability coordinator may obligate it to implement rules requiring reasonable notice for economic retirements.

2. ERCOT's assumptions about new gas turbine capacity are not realistic. While the FIP, along with other environmental regulations ERCOT included in its study, will strain the economic viability of coal plants and likely lead to less coal capacity, ERCOT has not considered new resources that will be available to help address potential reliability challenges. Specifically, ERCOT does not include approximately 4,500 MW of additional gas-fired capacity coming online in Texas in the upcoming years. This represents 7.5 percent of current gas capacity, and would double the modeled baseline gas capacity additions through 2029.

3. The set of regulatory scenarios modeled is both incomplete and (now) outdated. Despite an overall thorough analysis ERCOT excluded a critical scenario that would have modeled the impact of the Regional Haze Program FIP by itself. This limits inferences we can make about impacts. Additionally, since ERCOT finalized its study, EPA finalized the Clean Power Plan. The final rule includes substantive changes that are likely to affect all of the CO_2 limit and price-inclusive scenario modeling results.

4. Electric Generating Unit owners' compliance ''burdens'' with the regional haze FIP may be over-stated. Of the 15 coal-fired units subject to regional haze compliance requirements, eight require upgrades to their existing scrubbers rather than new scrubbers. ERCOT assumed that all of the scrubbers would be priced at the cost of a new retrofit, thereby substantially increasing the cost of the regulation.

We reviewed and accept our contractor's finding and adopt its conclusion that ERCOT's report contained significant flaws. In sum, ERCOT's report cannot support a determination that there is likely to be any significant, adverse effect on the supply, distribution, or use of energy. During our comment period, we received no non-speculative information to validate claims that sources would retire rather than install demonstrably cost-effective controls. Commenters who have alleged grid reliability concerns in response to our proposed controls have not provided adequate documentation for their assertions.

T. Determination of Nationwide Scope and Effect

Several commenters disagreed with our proposed determination of ''nationwide scope and effect,'' which would require all petitions for judicial review to be filed in the U.S. Court of Appeals for the District of Columbia Circuit Court. These commenters argued that our proposed action did not have nationwide scope and effect because it applied only to two states. They further argued that the control requirements in the FIP applied only to sources in Texas. The commenters acknowledged that the proposed action involved our interpretation of our regulations, but asserted that the same is true for many SIP actions. The commenters went on to cite several regional haze SIP actions where we did not make a finding of nationwide scope and effect as evidence that our proposal to do so in this instance was unlawful. Ultimately, these commenters concluded that our proposed action was ''locally or regionally applicable'' and that any future petitions for review must be filed in the appropriate regional circuit. Some commenters suggested that judicial review would only be appropriate in the Fifth Circuit.

We disagree with these comments. The commenters are conflating two distinct portions of the CAA's judicial review provision. Under CAA section 307(b)(1), ''[a] petition for review of . . . nationally applicable regulations promulgated, or final agency action taken, by the Administrator . . . may be filed only in the United States Court of Appeals for the District of Columbia.'' Contrary to the commenter's assertions, we did not assert at proposal, nor do we

[203] Commission for Environmental Cooperation of North America, ''North American Power Plant Air Emissions,'' *http://www.cec.org/storage/56/4876_powerplant_airemission_en.pdf.* TCEQ may keep this in consideration in future studies on the impacts of sources from Mexico on Class I areas or otherwise.

[204] Big Bend Regional Aerosol and Visibility Observational Study (BRAVO), Final Report, September 2004.

[205] *http://www.epbusinessjournal.com/2015/11/dos-republicas-coal-partnership-coal-mine-expanded-water-discharge-permit-application-to-be-heard-november-16th/.*

[206] Authorization to Discharge Under the National Pollutant Discharge Elimination System. Permit No. TX0109011.

[207] Final Environmental Impact Statement on Dos Republicas Resource Company, Inc.'s Proposed Eagle Pass Mine in Maverick County, Texas, December 30, 1994. Page C–51.

[208] Synapse's report, ''ERCOT_Report_Review_Memo_20150908.pdf'' is in our docket to this rulemaking action.

assert now, that our FIP for Texas and Oklahoma is a ''nationally applicable'' regulation. CAA section 307(b)(1) next provides that ''[a] petition for review of the Administrator's action in approving or promulgating any implementation plan under section 7410 . . . or any other final action of the Administrator . . . which is locally or regionally applicable may be filed only in the United States Court of Appeals for the appropriate circuit.'' The commenters cite this sentence, but ignore the following sentence, which states ''[n]otwithstanding the preceding sentence a petition for review of any action referred to in such sentence may be filed only in the United States Court of Appeals for the District of Columbia if such action is based on a determination of nationwide scope or effect and if in taking such action the Administrator finds and publishes that such action is based on such determination.''

In other words, a final agency action that is locally or regionally applicable, such as a FIP, is appealable only in the D.C. Circuit Court if two conditions are met: (1) The action is based on a determination of nationwide scope or effect, and (2) we find and publish our determination. Both conditions are met here. First, we proposed to find and have confirmed our finding in this final rule that our action on the Texas and Oklahoma regional haze SIPs, which includes the promulgation of a partial FIP for each state, is based on a determination of nationwide scope and effect. Second, we have published that finding in the **Federal Register**.

While the CAA does not provide any guidance regarding the phrase ''nationwide scope and effect,'' the legislative history indicates that a determination of nationwide scope and effect is appropriate if a local or regional action encompasses two or more judicial circuits. The commenters made no effort to explain why this legislative history should not be taken into account. Instead, the commenters cited to other EPA actions on regional haze SIPs where we did not make a determination of nationwide scope and effect. However, the commenters failed to mention that all of these actions involved a single state and thus did not implicate multiple judicial circuits. We have routinely made determinations of nationwide scope and effect when more than one circuit is involved. Last year, for instance, we made a determination of nationwide scope and effect in a SIP approval action that involved the States of Florida and North Carolina, which reside in separate judicial circuits.[209] We have made many other such determinations over the years.

We also determined that this action has nationwide scope and effect because at the core of this rulemaking is our interpretation of the requirements of sections 110(a)(2)(D)(i)(II) and 169A(b)(2) of the CAA and multiple complex provisions of the Regional Haze Rule. Many commenters disagreed with our interpretation of these provisions, with some providing alternative interpretations that would substantially eviscerate the Regional Haze Rule. Congress intended for such issues of national importance to be decided by the D.C. Circuit.

III. Final Action

For the reasons discussed more fully in section II, above and detailed in our proposal and its accompanying TSDs, in this action, we are partially approving and partially disapproving a revision to the Texas SIP received from the State of Texas on March 31, 2009, that intended to address regional haze for the first planning period from 2008 through 2018. We also are disapproving the interstate visibility transport portions of the Texas SIP that address CAA provisions for prohibiting air pollutant emissions from interfering with measures required to protect visibility in any other state. We also are partially disapproving a revision to the Oklahoma SIP submitted in February 19, 2010, that addresses regional haze for the first planning period. We are finalizing a FIP to remedy certain of the deficiencies and not acting on others. Below is a list of the specific actions we are finalizing in this rulemaking.

A. Texas Regional Haze

We are approving the portions of the Texas regional haze SIP submitted on March 31, 2009, except for the following Regional Haze Rule requirements contained in 40 CFR part 51:

- Section 51.308(d)(1)(i)(A), regarding Texas' reasonable progress four-factor analysis for the Guadalupe Mountains and Big Bend.
- Section 51.308(d)(1)(i)(B), regarding Texas' calculation of the emission reductions needed to achieve the uniform rates of progress for the Guadalupe Mountains and Big Bend.
- Section 51.308(d)(1)(ii), regarding Texas' reasonable progress goals for the Guadalupe Mountains and Big Bend.
- Section 51.308(d)(2)(iii), regarding Texas' calculation of natural visibility conditions.
- Section 51.308(d)(2)(iv)(A), regarding Texas' calculation of the number of deciviews by which baseline conditions exceed natural visibility conditions.
- Section 51.308(d)(3)(i), regarding Texas' long-term strategy consultations with Oklahoma.
- Section 51.308(d)(3)(ii), regarding Texas securing its share of reductions necessary to achieve the reasonable progress goals at Big Bend, the Guadalupe Mountains, and the Wichita Mountains.
- Section 51.308(d)(3)(iii), regarding Texas' technical basis for its long-term strategy for Big Bend, the Guadalupe Mountains the Wichita Mountains.
- Section 51.308(d)(3)(v)(C), regarding Texas' emission limitations and schedules for compliance to achieve the reasonable progress goals for Big Bend and the Guadalupe Mountains and Wichita Mountains.

We are also approving the Texas' BART Rules, 30 TAC 116.1500–116.1540, except for the 30 TAC 116.1510(d) which relies on CAIR and is disapproved.

We are not taking action on 40 CFR 51.308(e) concerning Texas EGU BART.

B. Oklahoma Regional Haze

We are disapproving the portion of the Oklahoma regional haze SIP that addresses the requirements of 40 CFR 51.308(d)(1) with respect to reasonable progress goals, with the exception of § 51.308(d)(1)(vi), which we are approving.

C. Interstate Visibility Transport

We are disapproving portions of Texas SIP submittals that address CAA provisions for prohibiting air pollutant emissions from interfering with measures required to protect visibility in any other state for the 1997 $PM_{2.5}$, 2006 $PM_{2.5}$, 1997 ozone, 2008 ozone, 2010 NO_2, and 2010 SO_2 NAAQS. Our final FIP does not cure these defects as that portion of the FIP would have partially relied on CSAPR. We will address the visibility transport requirements for Texas in a future rulemaking, once the issues surrounding the CSAPR partial remand are resolved.

D. Federal Implementation Plan

Our final FIP requires the following SO_2 emission limits for specific emission units in Texas:

[209] See 79 FR 29362.

TABLE 7—FINAL 30-BOILER-OPERATING-DAY SO_2 EMISSION LIMITS

Unit	SO_2 Emission limit (lbs/MMBtu)
Sandow 4	0.20
Martin Lake 1	0.12
Martin Lake 2	0.12
Martin Lake 3	0.11
Monticello 3	0.06
Limestone 2	0.08
Limestone 1	0.08
Big Brown 1	0.04
Big Brown 2	0.04
Monticello 1	0.04
Monticello 2	0.04
Coleto Creek 1	0.04
Tolk 172B	0.06
Tolk 171B	0.06
San Miguel	0.60

Compliance with these emission limits is based on a 30 BOD period. We are finalizing requirements providing that compliance with these limits be achieved within:

- Five years of the effective date of our final rule for Big Brown Units 1 and 2, Monticello Units 1 and 2, Coleto Creek Unit 1, and Tolk Units 171B and 172B.
- Three years of the effective date of our final rule for Sandow 4; Martin Lake Units 1, 2, and 3; Monticello Unit 3; and Limestone Units 1 and 2.
- One year of the effective date of our final rule for San Miguel. San Miguel may elect an alternative compliance method by doing the following:
- Install a CEMS at the inlet of the scrubber system. The 30 BOD SO_2 average from the existing outlet CEMS must read at or below 6.0% (94% control) of a 30 BOD SO_2 average from the inlet CEMS. San Miguel must inform us in writing of its decision to select this option for compliance by no later than their compliance date.

Based on our technical analysis, we have calculated the following in Tables 8 and 9 for Texas and Oklahoma:

TABLE 8—NATURAL VISIBILITY CONDITIONS, NUMBER OF DECIVIEWS BY WHICH BASELINE CONDITIONS EXCEED NATURAL VISIBILITY CONDITIONS, AND UNIFORM RATE OF PROGRESS FOR TEXAS

Class I area	Natural visibility conditions		Number of deciviews by which baseline conditions exceed natural visibility conditions		Uniform rates of progress at 2018
	20% Worst	20% Best	20% Worst	20% Best	
Guadalupe Mountains	6.65 dv	0.99 dv	10.54 dv	4.96 dv	14.73 dv.
Big Bend	7.16 dv	1.62 dv	10.14 dv	4.16 dv	14.93 dv.

TABLE 9—REASONABLE PROGRESS GOALS FOR TEXAS AND OKLAHOMA

Class I area	Reasonable progress goals	
	20% Worst	20% Best
Guadalupe Mountains	16.26 dv	5.70 dv.
Big Bend	16.57 dv	5.59 dv.
Wichita Mountains	21.33 dv	9.22 dv.

IV. Incorporation by Reference

In this rule, we are finalizing regulatory text that includes incorporation by reference. In accordance with the requirements of 1 CFR 51.5, we are finalizing the incorporation by reference of the revisions to the Texas regulations as described in the Final Action section above and the amendments to 40 CFR part 52 set forth below. We have made, and will continue to make, these documents generally available electronically through *http://www.regulations.gov* and/or in hard copy at the EPA Region 6 office.

V. Statutory and Executive Order Reviews

A. Executive Order 12866: Regulatory Planning and Review and Executive Order 13563: Improving Regulation and Regulatory Review

This action is exempt from review by the Office of Management and Budget (OMB) because it is not a rule of general applicability. This action finalizes a source-specific FIP for that applies to eight coal-fired power plants in Texas (Big Brown; Monticello; Coleto Creek; Tolk; Sandow; Martin Lake; Limestone; and San Miguel).

B. Paperwork Reduction Act (PRA)

This action does not impose an information collection burden under the provisions of the PRA, 44 U.S.C. 3501 *et seq.* Under the PRA, a ''collection of information'' is defined as a requirement for ''answers to . . . identical reporting or recordkeeping requirements imposed on ten or more persons . . . '' 44 U.S.C. 3502(3)(A). Because the FIP applies to only eight facilities, the Paperwork Reduction Act does not apply. See 5 CFR 1320.3(c).

C. Regulatory Flexibility Act (RFA)

I certify that this action will not have a significant economic impact on a substantial number of small entities under the RFA. This action will not impose any requirements on small entities. This FIP will apply to eight facilities, none of which are small entities. The final partial approval of the SIP merely approves state law as meeting Federal requirements and does not impose additional requirements.

D. Unfunded Mandates Reform Act (UMRA)

Title II of the UMRA, 2 U.S.C. 1531–1538, establishes requirements for Federal agencies to assess the effects of their regulatory actions on state, local,

and Tribal governments and the private sector. Under section 202 of the UMRA, EPA generally must prepare a written statement, including a cost-benefit analysis, for proposed and final rules with ''Federal mandates'' that may result in expenditures to state, local, and Tribal governments, in the aggregate, or to the private sector, of $100 million or more (adjusted for inflation) in any one year. Before promulgating an EPA rule for which a written statement is needed, section 205 of the UMRA generally requires EPA to identify and consider a reasonable number of regulatory alternatives and adopt the least costly, most cost-effective, or least burdensome alternative that achieves the objectives of the rule. The provisions of section 205 of UMRA do not apply when they are inconsistent with applicable law. Moreover, section 205 of the UMRA allows EPA to adopt an alternative other than the least costly, most cost-effective, or least burdensome alternative if the Administrator publishes with the final rule an explanation why that alternative was not adopted. Before EPA establishes any regulatory requirements that may significantly or uniquely affect small governments, including Tribal governments, it must have developed under section 203 of the UMRA a small government agency plan. The plan must provide for notifying potentially affected small governments, enabling officials of affected small governments to have meaningful and timely input in the development of EPA regulatory proposals with significant Federal intergovernmental mandates, and informing, educating, and advising small governments on compliance with the regulatory requirements.

EPA has determined that Title II of the UMRA does not apply to this rule. In 2 U.S.C. 1502(1) all terms in Title II of UMRA have the meanings set forth in 2 U.S.C. 658, which further provides that the terms ''regulation'' and ''rule'' have the meanings set forth in 5 U.S.C. 601(2). Under 5 U.S.C. 601(2), ''the term 'rule' does not include a rule of particular applicability relating to . . . facilities.'' Because this rule is a rule of particular applicability relating to eight named facilities, EPA has determined that it is not a ''rule'' for the purposes of Title II of the UMRA.

E. Executive Order 13132: Federalism

This action does not have Federalism implications. It will not have substantial direct effects on the states, on the relationship between the national government and the states, or on the distribution of power and responsibilities among the various levels of government. The final rule does not impose significant economic costs on state or local governments. Thus, Executive Order 13132 does not apply to the final rule.

F. Executive Order 13175: Coordination With Indian Tribal Governments

This action does not have tribal implications as specified in Executive Order 13175. This action applies to eight facilities in Texas and to Federal Class I areas in Oklahoma and Texas. This action does not apply on any Indian reservation land, any other area where EPA or an Indian tribe has demonstrated that a tribe has jurisdiction, or non-reservation areas of Indian country. Thus, Executive Order 13175 does not apply to this action.

G. Executive Order 13045: Protection of Children From Environmental Health Risks and Safety Risks

Executive Order 13045: Protection of Children From Environmental Health Risks and Safety Risks applies to any rule that: (1) Is determined to be economically significant as defined under Executive Order 12866; and (2) concerns an environmental health or safety risk that we have reason to believe may have a disproportionate effect on children. This action is not subject to Executive Order 13045 because the EPA does not believe the environmental health or safety risks addressed by this action present a disproportionate risk to children. Moreover, ''regulation'' or ''rule,'' is defined in Executive Order 12866 as ''an agency statement of general applicability and future effect.'' E.O. 12866 does not define ''statement of general applicability,'' but this term commonly refers to statements that apply to groups or classes, as opposed to statements, which apply only to named entities. The FIP therefore is not a rule of general applicability because its requirements apply and are tailored to only eight individually identified facilities. Thus, it is not a ''rule'' or ''regulation'' within the meaning of E.O. 12866. However, as this action will limit emissions of SO_2, it will have a beneficial effect on children's health by reducing air pollution.

H. Executive Order 13211: Actions That Significantly Affect Energy Supply, Distribution or Use

This action is not subject to Executive Order 13211 because it is not a significant regulatory action under Executive Order 12866.

I. National Technology Transfer and Advancement Act

This action involves technical standards. Section 12(d) of the National Technology Transfer and Advancement Act of 1995 (''NTTAA''), Public Law 104–113, 12(d) (15 U.S.C. 272 note) directs EPA to use voluntary consensus standards in its regulatory activities unless to do so would be inconsistent with applicable law or otherwise impractical. Voluntary consensus standards are technical standards (*e.g.,* materials specifications, test methods, sampling procedures, and business practices) that are developed or adopted by voluntary consensus standards bodies. NTTAA directs EPA to provide Congress, through OMB, explanations when the Agency decides not to use available and applicable voluntary consensus standards. This rule would require the eight affected facilities to meet the applicable monitoring requirements of 40 CFR part 75. Part 75 already incorporates a number of voluntary consensus standards. Consistent with the Agency's Performance Based Measurement System (PBMS), part 75 sets forth performance criteria that allow the use of alternative methods to the ones set forth in part 75. The PBMS approach is intended to be more flexible and cost-effective for the regulated community; it is also intended to encourage innovation in analytical technology and improved data quality. At this time, EPA is not recommending any revisions to part 75; however, EPA periodically revises the test procedures set forth in part 75. When EPA revises the test procedures set forth in part 75 in the future, EPA will address the use of any new voluntary consensus standards that are equivalent. Currently, even if a test procedure is not set forth in part 75, EPA is not precluding the use of any method, whether it constitutes a voluntary consensus standard or not, as long as it meets the performance criteria specified; however, any alternative methods must be approved through the petition process under 40 CFR 75.66 before they are used.

J. Executive Order 12898: Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations

The EPA believes the human health or environmental risk addressed by this action will not have potential disproportionately high and adverse human health or environmental effects on minority, low-income, or indigenous populations because it increases the level of environmental protection for all

affected populations without having any disproportionately high and adverse human health or environmental effects on any population, including any minority or low-income population. This FIP limits emissions of SO_2 from eight facilities in Texas.

K. Congressional Review Act

The Congressional Review Act, 5 U.S.C. 801 *et seq.,* as added by the Small Business Regulatory Enforcement Fairness Act of 1996, generally provides that before a rule may take effect, the agency promulgating the rule must submit a rule report, which includes a copy of the rule, to each House of the Congress and to the Comptroller General of the United States. EPA will submit a report containing this action and other required information to the U.S. Senate, the U.S. House of Representatives, and the Comptroller General of the United States prior to publication of the rule in the **Federal Register**. A major rule cannot take effect until 60 days after it is published in the **Federal Register**. This action is not a ''major rule'' as defined by 5 U.S.C. 804(2). This rule will be effective on February 4, 2016.

VI. Judicial Review

The scope and effect of this rulemaking extend to Texas and Oklahoma, which are located in two judicial circuits. In addition, EPA's clarified interpretation of its regulations as set forth in this final action, including the accompanying RTC and TSD documents, is applicable to regional haze actions in all states, not just the specific actions we are taking here with regard to the regional haze obligations for Texas and Oklahoma. Accordingly, the Administrator determines that this is a rulemaking of nationwide scope or effect and any petitions for review must be filed in the U.S. Court of Appeals for the District of Columbia Circuit in accordance with CAA section 307(b)(1). Petitions for judicial review of this action must be filed in the U.S. Court of Appeals for the District of Columbia Circuit by March 7, 2016.

In addition, pursuant to CAA section 307(d)(1)(B), this action is subject to the requirements of CAA section 307(d) because it promulgates a FIP under CAA section 110(c). Filing a petition for reconsideration by the Administrator of this final rule does not affect the finality of this action for the purposes of judicial review, extend the time within which a petition for judicial review may be filed, or postpone the effectiveness of the rule. Per CAA section 307(b)(2), this action may not be challenged later in proceedings to enforce its requirements.

List of Subjects in 40 CFR Part 52

Environmental protection, Air pollution control, Incorporation by reference, Intergovernmental relations, Nitrogen dioxide, Ozone, Particulate matter, Reporting and recordkeeping requirements, Sulfur dioxides, Visibility, Interstate transport of pollution, Regional haze, Best available control technology.

Dated: December 9, 2015.

Gina McCarthy,

Administrator.

Title 40, chapter I, of the Code of Federal Regulations is amended as follows:

PART 52—APPROVAL AND PROMULGATION OF IMPLEMENTATION PLANS

■ 1. The authority citation for part 52 continues to read as follows:

Authority: 42 U.S.C. 7401 *et seq.*

Subpart LL—Oklahoma

■ 2. Section 52.1920(e) is amended by revising the entry for ''Regional haze SIP'' in the table titled ''EPA-Approved Nonregulatory Provisions and Quasi-Regulatory Measures in the Oklahoma SIP'' to read as follows:

§ 52.1920 Identification of plan.

* * * * *

(e) * * *

EPA-APPROVED NONREGULATORY PROVISIONS AND QUASI-REGULATORY MEASURES IN THE OKLAHOMA SIP

Name of SIP provision	Applicable geographic or non-attainment area	State submittal date	EPA approval date	Explanation
* *	*	*	*	* *
Regional haze SIP: ..... (a) Determination of baseline and natural visibility conditions. (b) Coordinating regional haze and reasonably attributable visibility impairment. (c) Monitoring strategy and other implementation requirements. (d) Coordination with States and Federal Land Managers (e) BART determinations except for the following SO_2 BART determinations: Units 4 and 5 of the Oklahoma Gas and Electric (OG&E) Muskogee plant; and Units 1 and 2 of the OG&E Sooner plant	Statewide	2/17/2010	3/7/2014, 79 FR 12953.	Core requirements of 40 CFR 51.308. Initial approval 12/28/2011, 76 FR 81728. Approval for § 51.308(d)(1)(vi) 1/5/2016 [Insert **Federal Register** citation].
* *	*	*	*	* *

* * * * *

■ 3. Section 52.1928 is amended by revising paragraphs (a)(3) and (4) and adding paragraph (a)(5) to read as follows:

§ 52.1928 Visibility protection.

(a) * * *

(3) ''Greater RP Alternative Determination'' (Section VI.E);

(4) Separate executed agreements between ODEQ and OG&E, and ODEQ and AEP/PSO entitled ''OG&E RH Agreement, Case No. 10–024, and ''PSO RH Agreement, Case No. 10–025,'' housed within Appendix 6–5 of the RH SIP; and

(5) The reasonable progress goals for the first planning period and the reasonable progress consultation with Texas for the Wichita Mountains Class I area.

* * * * *

Subpart SS—Texas

■ 4. Section 52.2270 is amended by:

■ a. In paragraph (c), adding center heading ''Subchapter M: Best Available Retrofit Technology (BART)'' and the sections 116.1500, 116.1510, 116.1520, 116.1530 and 116.1540 under ''Chapter 116 (Reg 6)—Control of Air Pollution by Permits for New Construction or Modification''; and

■ b. In paragraph (e), adding an entry for ''Texas Regional Haze SIP'' at the end of the table titled ''EPA Approved Nonregulatory Provisions and Quasi-Regulatory Measures in the Texas SIP''.

The additions read as follows:

§ 52.2270 Identification of plan.

* * * * *

(c) * * *

EPA APPROVED REGULATIONS IN THE TEXAS SIP

State citation	Title/subject	State approval/ submittal date	EPA approval date	Explanation
*	*	*	*	*
Chapter 116 (Reg 6)—Control of Air Pollution by Permits for New Construction or Modification				
*	*	*	*	*
Subchapter M: Best Available Retrofit Technology (BART)				
Section 116.1500	Definitions	2/25/2009	1/5/2016 [Insert **Federal Register** citation].	
Section 116.1510	Applicability and Exemption Requirements.	2/25/2009	1/5/2016 [Insert **Federal Register** citation].	116.1510(d) is NOT part of the approved SIP.
Section 116.1520	Best Available Retrofit Technology (BART) Analysis.	2/25/2009	1/5/2016 [Insert **Federal Register** citation].	
Section 116.1530	Best Available Retrofit Technology (BART) Control Implementation.	2/25/2009	1/5/2016 [Insert **Federal Register** citation].	
Section 116.1540	Exemption from Best Available Retrofit Technology (BART) Control Implementation.	2/25/2009	1/5/2016 [Insert **Federal Register** citation].	
*	*	*	*	*

* * * * *

(e) * * *

EPA APPROVED NONREGULATORY PROVISIONS AND QUASI-REGULATORY MEASURES IN THE TEXAS SIP

Name of SIP provision	Applicable geographic or non-attainment area	State submittal date/ effective date	EPA approval date	Comments
*	* *		* *	* *
Texas Regional Haze SIP.	Statewide	3/19/2009	1/5/2016 [Insert **Federal Register** citation].	The following sections are not approved as part of the SIP: The reasonable progress four-factor analysis, reasonable progress goals and the calculation of the emission reductions needed to achieve the uniform rates of progress for the Guadalupe Mountains and Big Bend; calculation of natural visibility conditions; calculation of the number of deciviews by which baseline conditions exceed natural visibility conditions; long-term strategy consultations with Oklahoma; Texas securing its share of reductions necessary to achieve the reasonable progress goals at Big Bend, the Guadalupe Mountains, and the Wichita Mountains; technical basis for its long-term strategy and emission limitations and schedules for compliance to achieve the RPGs for Big Bend, the Guadalupe Mountains and Wichita Mountains.

■ 6. Section 52.2302 is added to read as follows:

§ 52.2302 Federal implementation plan for regional haze.

(a) Requirements for Martin Lake Units 1, 2, and 3; Monticello Units 1, 2, and 3, Limestone Units 1 and 2; Sandow Unit 4; Big Brown Units 1 and 2; Coleto Creek Unit 1; Tolk Units 1 and 2; and San Miguel affecting visibility.

(1) *Applicability.* The provisions of this section shall apply to each owner or operator, or successive owners or operators, of the coal burning equipment designated as: Martin Lake Units 1, 2, and 3; Monticello Units 1, 2, and 3, Limestone Units 1 and 2; Sandow Unit 4; Big Brown Units 1 and 2; Coleto Creek Unit 1; Tolk Units 1 and 2; and San Miguel.

(2) *Compliance dates.* Compliance with the requirements of this section is required by February 4, 2019 for Martin Lake Units 1, 2, and 3; Monticello Unit 3, Limestone Units 1 and 2; and Sandow Unit 4. Compliance with the requirements of this section is required by February 4, 2021 for Big Brown Units 1 and 2; Monticello Units 1 and 2; Coleto Creek Unit 1; and Tolk Units 1 and 2. Compliance with the requirements of this section is required by February 4, 2017 for San Miguel. These compliance dates apply unless otherwise indicated by compliance dates contained in specific provisions.

(3) *Definitions.* All terms used in this part but not defined herein shall have the meaning given them in the Clean Air Act (CAA) and in 40 CFR parts 51 and 60. For the purposes of this section:

24-hour period means the period of time between 12:01 a.m. and 12 midnight.

Air pollution control equipment includes selective catalytic control units, baghouses, particulate or gaseous scrubbers, and any other apparatus utilized to control emissions of regulated air contaminants which would be emitted to the atmosphere.

Boiler-operating-day means any 24-hour period between 12:00 midnight and the following midnight during which any fuel is combusted at any time at the steam generating unit.

Daily average means the arithmetic average of the hourly values measured in a 24-hour period.

Heat input means heat derived from combustion of fuel in a unit and does not include the heat input from preheated combustion air, recirculated flue gases, or exhaust gases from other sources. Heat input shall be calculated in accordance with 40 CFR part 75.

Owner or Operator means any person who owns, leases, operates, controls, or supervises any of the coal burning equipment designated in paragraph (a) of this section.

Regional Administrator means the Regional Administrator of EPA Region 6 or his/her authorized representative.

Unit means one of the coal fired boilers covered under paragraph (a) of this section.

(4) *Emissions limitations—SO_2 emission limit.* The individual sulfur dioxide emission limit for a unit shall be as listed in the table in this paragraph (a)(4) in pounds per million British thermal units (lb/MMBtu) as averaged over a rolling 30-boiler-operating-day period.

Unit	SO_2 Emission limit (lbs/MMBtu)
Sandow 4	0.20
Martin Lake 1	0.12
Martin Lake 2	0.12
Martin Lake 3	0.11
Monticello 3	0.06
Limestone 2	0.08
Limestone 1	0.08
Big Brown 1	0.04
Big Brown 2	0.04
Monticello 1	0.04
Monticello 2	0.04
Coleto Creek 1	0.04
Tolk 172B	0.06
Tolk 171B	0.06
San Miguel	0.60

(i) For each unit, SO_2 emissions for each calendar day shall be determined by summing the hourly emissions measured in pounds of SO_2. For each unit, heat input for each boiler-operating-day shall be determined by adding together all hourly heat inputs, in millions of BTU. Each boiler-operating-day of the thirty-day rolling average for a unit shall be determined by adding together the pounds of SO_2 from that day and the preceding 29-boiler-operating-days and dividing the total pounds of SO_2 by the sum of the heat input during the same 30-boiler-operating-day period. The result shall be the 30-boiler-operating-day rolling

average in terms of lb/MMBtu emissions of SO_2. If a valid SO_2 pounds per hour or heat input is not available for any hour for a unit, that heat input and SO_2 pounds per hour shall not be used in the calculation of the 30-boiler-operating-day rolling average for SO_2.

(ii) In lieu of paragraph (a)(4)(i) of this section, and if San Miguel meets paragraph (a)(5)(i) of this section, it may install a CEMS at the inlet of the scrubber system. The 30 BOD SO_2 average from the existing outlet CEMS must read at or below 6.0% (94% control) of a 30 BOD SO_2 average from the inlet CEMS.

(5) *Testing and monitoring.* (i) No later than the compliance date as set out in paragraph (a)(2) of this section, the owner or operator shall install, calibrate, maintain and operate Continuous Emissions Monitoring Systems (CEMS) for SO_2 on the units listed in paragraph (a)(1) of this section in accordance with 40 CFR 60.8 and 60.13(e), (f), and (h), and appendix B of part 60 of this chapter. No later than the compliance date as set out in paragraph (a)(2), San Miguel must submit a letter to the Regional Administrator that informs the EPA which compliance option it elects, as specified in paragraph (a)(4) of this section. San Miguel must then adhere to the compliance method set forth in that letter to the Regional Administrator. All owners or operators shall comply with the quality assurance procedures for CEMS found in 40 CFR part 75. Compliance with the emission limits for SO_2 shall be determined by using data from a CEMS.

(ii) Continuous emissions monitoring shall apply during all periods of operation of the coal burning equipment, including periods of startup, shutdown, and malfunction, except for CEMS breakdowns, repairs, calibration checks, and zero and span adjustments. Continuous monitoring systems for measuring SO_2 and diluent gas shall complete a minimum of one cycle of operation (sampling, analyzing, and data recording) for each successive 15-minute period. Hourly averages shall be computed using at least one data point in each fifteen minute quadrant of an hour. Notwithstanding this requirement, an hourly average may be computed from at least two data points separated by a minimum of 15 minutes (where the unit operates for more than one quadrant in an hour) if data are unavailable as a result of performance of calibration, quality assurance, preventive maintenance activities, or backups of data from data acquisition and handling system, and recertification events. When valid SO_2 pounds per hour, or SO_2 pounds per million Btu emission data are not obtained because of continuous monitoring system breakdowns, repairs, calibration checks, or zero and span adjustments, emission data must be obtained by using other monitoring systems approved by the EPA to provide emission data for a minimum of 18 hours in each 24 hour period and at least 22 out of 30 successive boiler-operating-days.

(6) *Reporting and recordkeeping requirements.* Unless otherwise stated all requests, reports, submittals, notifications, and other communications to the Regional Administrator required by this section shall be submitted, unless instructed otherwise, to the Director, Multimedia Planning and Permitting Division, U.S. Environmental Protection Agency, Region 6, to the attention of Mail Code: 6PD, at 1445 Ross Avenue, Suite 1200, Dallas, Texas 75202–2733. For each unit subject to the emissions limitation in this section and upon completion of the installation of CEMS as required in this section, the owner or operator shall comply with the following requirements:

(i) For each emissions limit in this section, comply with the notification, reporting, and recordkeeping requirements for CEMS compliance monitoring in 40 CFR 60.7(c) and (d).

(ii) For each day, provide the total SO_2 emitted that day by each emission unit. For any hours on any unit where data for hourly pounds or heat input is missing, identify the unit number and monitoring device that did not produce valid data that caused the missing hour.

(7) *Equipment operations.* At all times, including periods of startup, shutdown, and malfunction, the owner or operator shall, to the extent practicable, maintain and operate the unit including associated air pollution control equipment in a manner consistent with good air pollution control practices for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Regional Administrator which may include, but is not limited to, monitoring results, review of operating and maintenance procedures, and inspection of the unit.

(8) *Enforcement.* (i) Notwithstanding any other provision in this implementation plan, any credible evidence or information relevant as to whether the unit would have been in compliance with applicable requirements if the appropriate performance or compliance test had been performed, can be used to establish whether or not the owner or operator has violated or is in violation of any standard or applicable emission limit in the plan.

(ii) Emissions in excess of the level of the applicable emission limit or requirement that occur due to a malfunction shall constitute a violation of the applicable emission limit.

(b) [Reserved]

■ 7. Section 52.2304 is amended by adding paragraphs (d) and (e) to read as follows:

§ 52.2304 Visibility protection.

* * * * *

(d) Portions of SIPs addressing noninterference with measures required to protect visibility in any other state are disapproved for the 1997 $PM_{2.5}$, 2006 $PM_{2.5}$, 1997 ozone, 2008 ozone, 2010 NO_2 and 2010 SO_2 NAAQS.

(e) The following portions of the Texas regional haze SIP submitted March 19, 2009 are disapproved: The reasonable progress four-factor analysis, reasonable progress goals and the calculation of the emission reductions needed to achieve the uniform rates of progress for the Guadalupe Mountains and Big Bend; calculation of natural visibility conditions; calculation of the number of deciviews by which baseline conditions exceed natural visibility conditions; long-term strategy consultations with Oklahoma; Texas securing its share of reductions necessary to achieve the reasonable progress goals at Big Bend, the Guadalupe Mountains, and the Wichita Mountains; technical basis for its long-term strategy and emission limitations and schedules for compliance to achieve the reasonable progress goals for Big Bend, the Guadalupe Mountains and Wichita Mountains.

[FR Doc. 2015–31904 Filed 1–4–16; 8:45 am]

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